THE WELDON TOOL COMPANY
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CATALOG 1998

It Took More Than Being First To Make Weldon Number One

Weldon Tool Company can lay claim to many firsts. Our Weldon shank was the first straight shank with a locking drive flat. And our Crest-Kut® end mill was the first to be designed for both roughing and finishing. But it wasn't these firsts alone that put Weldon at the top. Being consistent has been the real key to our success. Consistent in outstanding quality, prompt delivery, and timely technical support. That's what customers remember. At Weldon, we never forgot it. Being first to develop a new product is important. But being first in the minds of our customers is even more so.

In the beginning . . . Carl A. Bergstrom founded The Weldon Tool Company in February, 1918. Back then, in a loft atop the old Blackstone Building in downtown Cleveland, the company was just a two-man machine shop.

Weldon has since made its way south of Cleveland to Valley View, Ohio, to a new state-of-the-art manufacturing facility. The reasons for the company's phenomenal growth are many. Its people, its customer service, and of course, its commitment to innovation.

Weldon's contributions to the cutting tool industry are well documented. And the firm's history is filled with new product developments that have shaped the industry we know today. Carl Bergstrom believed that using a straight-fluted end mill was not the best method for removing metal, so he developed the first helical end mill with flutes of 30 degrees. To compensate for "pull out" forces, and to drive his new end mill, he subsequently developed the Weldon straight shank with a drive flat. This product, known as the Weldon Shank, is accepted today as the industry standard. Its design and tolerances still serve as guides to both end mill users and manufacturers, as well as the American National Standards Institute.

The development of the Weldon Shank was only the beginning. Its introduction has been followed by a long list of Weldon innovations right up to today.

- Weldon Shank
- Plus-Kut™ end mills
- Quick-change adapters and holders
- Controlled, peripheral primary-relief angles
- Weldon countersinks
- Weldon deburring tools
- Axial relieving fixture
- Ski-Kut® for aluminum
- Hollow ground tooth faces
- End mill presetting holder system for NC milling machines
- Secondary-clearance angles
- Constant-helix die sinking taper end mills
- Model # 200® end mill sharpening fixture for metric/inch diameters
- Double-end end mills
- Tu-Lip® counterbores
- Crest-Kut® end mill for both roughing/finishing
- UniLead® precision controlled CNC leads
- Ski-Carb® solid-carbide end mills
- Ultra-Kut® high performance taps

Our new "Metric" Catalogue is now available and feature metric products and ranges. In addition to the catalog, we have increased our inventory of standard products at our European warehouse located at Gent. In Belgium . . . as well as here in the United States. We hope this will help us serve you better, and ensure the consistently superior service you've come to expect from Weldon Tool.

The new Ultra-Kut® high performance tap offering from Weldon goes beyond what is usual and ordinary in high performance tapping. This line of taps was specifically engineered to eliminate confusion and field testing in H limits to obtain a Class 2-B or 3-B fit with a proven tap geometry for specific materials and applications. Our innovations applied to the taps, combined with application specific geometry, heat treatment and surface treatments, result in better thread finishes, maximum tool life and greatly improved tapping performance. Taps are available in materials including stainless steels, nickel alloys, cast iron, titanium alloys, and all types of steel applications. The styles available in ANSI standard inch and metric sizes include spiral point, spiral flute, straight flute and form taps for use in blind or through the hole tapping. Diameters range from machine screw size number 4 to 3/4 inch and M4 to M42.

Now, a whole new generation of Weldon customers has come along. To serve this new breed, as well as our long-standing customers, we will provide insights into the latest developments in cutting tool technology. We will also offer application tips that can help you increase the productivity of your metal cutting operations.

Weldon's innovations didn't occur by accident. They were the result of skilled people using state-of-the-art materials, processes and equipment. A combination of traditional craftsmanship and today's CNC technology.

When you do business with Weldon, you don't just get a cutting tool, you get an entire company that stands behind every product it sells.

WELDON®

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THE WELDON TOOL COMPANY WARRANTY AND LIMITATION OF LIABILITY

The Weldon Tool Company warrants each new product manufactured and sold by it or one of its authorized dealers only against defects in workmanship and/or materials under normal service, proper installation and use. This warranty is limited to repair or replacement of verified defective products and excludes any and all implied warranty or merchantability and all risk and liability whatsoever resulting from any use of said products, including incidental and consequential damages. The provisions of this warranty and limitation of liability shall not be modified in any respect except by written document signed by an officer of The Weldon Tool Company.

IMPORTANT Cutting tools can shatter/break under improper or severe use. Wear safety equipment and particularly eye protection at all times in the vicinity of their use.

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End Mills by Diameter

Quick Index

Tool Material Code

- High Speed Steel
- Cobalt
- Carbide
- PM Vanadium

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1/32 to 9/64 End Mills by Diameter

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1/32	***Premium 8% Cobalt HS Steel***							
	2 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/64	3/16	2	2	CoXS1-1	24802	D.E.	22
	3/32	3/16	2-1/4	2	CoX1-1	24902	D.E.	23
	2 FLUTE BALL END - *8% Cobalt*							
	3/64	3/16	2	2	CoXSR1-1	27310	D.E.	41
	3/32	3/16	2-1/4	2	CoXR1-1	27410	D.E.	41
3/64	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	1/16	3/16	2	2	CoXS-047	24804	D.E.	22
	9/64	3/16	2-1/4	2	CoX-047	24904	D.E.	23
	2 FLUTE BALL END - *8% Cobalt*							
	1/16	3/16	2	2	CoXSR-047	27312	D.E.	41
	9/64	3/16	2-1/4	2	CoXR-047	27412	D.E.	41
1/16	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	3/32	3/16	2	2	CoXS2-1	24806	D.E.	22
	3/16	3/16	2-1/4	2	CoX2-1	24906	D.E.	23
	7/32	3/16	2-1/2	2	CoXE2-1	25002	D.E.	23
	3/8" Below Shank							
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/32	3/16	2	4	CoWS2-1	41010	D.E.	30
	3/16	3/16	2-1/4	4	CoW2-1	41110	D.E.	31
	7/32	3/16	2-1/2	4	CoWE2-1	41210	D.E.	31
	3/8" Below Shank							
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	3/32	3/16	2	2	CoXSR2-1	27314	D.E.	41
	3/16	3/16	2-1/4	2	CoXR2-1	27414	D.E.	41
	7/32	3/16	2-1/2	2	CoXER2-1	27510	D.E.	41
	3/8" Below Shank							
	3/32	3/16	2	4	CoWSR2-1	47310	D.E.	42
	3/16	3/16	2-1/4	4	CoWR2-1	47410	D.E.	42
5/64	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	1/8	3/16	2	2	CoXS-078	24808	D.E.	22
	15/64	3/16	2-1/4	2	CoX-078	24908	D.E.	23
	2 FLUTE BALL END - *8% Cobalt*							
	1/8	3/16	2	2	CoXSR-078	27316	D.E.	41
	15/64	3/16	2-1/4	2	CoXR-078	27416	D.E.	41
3/32	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	9/64	3/16	2	2	CoXS3-1	24810	D.E.	22
	9/32	3/16	2-1/4	2	CoX3-1	24910	D.E.	23
	9/32	3/16	2-5/8	2	CoXE3-1	25004	D.E.	23
	1/2" Below Shank							
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	9/64	3/16	2	4	CoWSR3-1	47312	D.E.	42
	9/32	3/16	2-1/4	4	CoWR3-1	47412	D.E.	42
	9/64	3/16	2	2	CoXSR3-1	27318	D.E.	41
	9/32	3/16	2-1/4	2	CoXR3-1	27418	D.E.	41
	9/32	3/16	2-5/8	2	CoXER3-1	27512	D.E.	41
	1/2" Below Shank							
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	9/64	3/16	2	4	CoWS3-1	41012	D.E.	30
	9/32	3/16	2-1/4	4	CoW3-1	41112	D.E.	31
	9/32	3/16	2-5/8	4	CoWE3-1	41212	D.E.	31
	1/2" Below Shank							
	Premium 8% Cobalt HS Steel							

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
7/64	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	5/32	3/16	2	2	CoXS-109	24812	D.E.	22
	21/64	3/16	2-1/4	2	CoX-109	24912	D.E.	23
	2 FLUTE BALL END - *8% Cobalt*							
	5/32	3/16	2	2	CoXSR-109	27320	D.E.	41
	21/64	3/16	2-1/4	2	CoXR-109	27420	D.E.	41
1/8	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	3/16	3/16	2	2	CoXS4-1	24814	D.E.	22
	3/8	3/16	2-1/4	2	CoX4-1	24914	D.E.	23
	3/4	3/16	3-1/8	2	CoXE4-1	25006	D.E.	23
	3/16	3/8	2-3/4	2	CoBSB4-2	28902	D.E.	23
	3/16	3/8	2-1/8	2	CoBS4-2	28002	S.E.	27
	3/8	3/8	3-1/16	2	CoBB4-2	29002	D.E.	22
	3/8	3/8	2-5/16	2	CoB4-2	28202	S.E.	24
	3/8	3/8	2-5/16	2	CoB4-2K	28702	S.E.	27
					+.000 to -.0015			
	3/8	3/8	2-3/8	2	CoBL4-2	28502	S.E.	26
	13/16" Below Shank							
	3/8	3/8	3-1/16	2	CoSBB4-2**	29102	D.E.	23
	3/8	3/8	2-5/16	2	CoSB4-2**	28602	S.E.	26
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/8	3/8	3-1/16	3	CoCC4-2	32210	D.E.	29
	3/8	3/8	2-5/16	3	CoC4-2	32010	S.E.	28
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/16	3/16	2	4	CoWS4-1	41014	D.E.	30
	3/8	3/16	2-1/4	4	CoW4-1	41114	D.E.	31
	3/4	3/16	3-1/8	4	CoWE4-1	41214	D.E.	31
	3/16	3/8	2-3/4	4	CoASA4-2	45810	D.E.	31
	3/16	3/8	2-1/8	4	CoAS4-2	44010	S.E.	36
	3/8	3/8	3-1/16	4	CoAA4-2	45910	D.E.	30
	3/8	3/8	2-5/16	4	CoA4-2	44110	S.E.	31
	4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	5/16	1/8***	1-1/4	4	ASF4	41410	S.E.	36
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	3/16	3/16	2	2	CoXSR4-1	27322	D.E.	41
	3/8	3/16	2-1/4	2	CoXR4-1	27422	D.E.	41
	3/4	3/16	3-1/8	2	CoXER4-1	27514	D.E.	41
	3/4" Below Shank							
	3/16	3/8	2-11/16	2	CoRSR4-2	27830	D.E.	40
	3/8	3/8	3-1/16	2	CoRR4-2	27910	D.E.	39
	3/8	3/8	2-5/16	2	CoR4-2	27602	S.E.	39
	3/8	3/8	2-3/8	2	CoRL4-2	27702	S.E.	40
	13/16" Below Shank							
	3/8	3/8	2-5/16	4	CoRK4-2	47510	S.E.	42
	3/16	3/16	2	4	CoWSR4-1	47314	D.E.	42
	3/8	3/16	2-1/4	4	CoWR4-1	47414	D.E.	42
	Premium 8% Cobalt HS Steel							
9/64	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	7/32	3/16	2	2	CoXS-141	24816	D.E.	22
	13/32	3/16	2-1/4	2	CoX-141	24916	D.E.	23
	7/16	3/8	3-1/8	2	CoBB141-2	29004	D.E.	22
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	7/16	3/8	3-1/8	3	CoCC141-2	32212	D.E.	29
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	7/16	3/8	3-1/8	4	CoAA141-2	45912	D.E.	30
	2 FLUTE BALL END - *8% Cobalt*							
	7/32	3/16	2	2	CoXSR-141	27324	D.E.	41
	13/32	3/16	2-1/4	2	CoXR-141	27424	D.E.	41
	7/16	3/8	3-1/8	2	CoRR141-2	27912	D.E.	39

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
5/32	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	15/64	3/16	2	2	CoXS5-1	24818	D.E.	22
	7/16	3/16	2-1/4	2	CoX5-1	24918	D.E.	23
	7/8	3/16	3-1/4	2	CoXE5-1	25008	D.E.	23
	15/64	3/8	2-3/4	2	CoBSB5-2	28904	D.E.	23
	7/16	3/8	3-1/8	2	CoBB5-2	29006	D.E.	22
	7/16	3/8	2-5/16	2	CoB5-2	28204	S.E.	24
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	7/16	3/8	3-1/8	3	CoCC5-2	32214	D.E.	29
	1/2	3/8	2-3/8	3	CoC5-2	32012	S.E.	28
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	15/64	3/16	2	2	CoXSR5-1	27326	D.E.	41
	7/16	3/16	2-1/4	2	CoXR5-1	27426	D.E.	41
	7/8 *7/8" Below Shank*	3/16	3-1/4	2	CoXER5-1	27516	D.E.	41
	7/16	3/8	3-1/8	2	CoRR5-2	27914	D.E.	39
	7/16	3/8	2-5/16	2	CoR5-2	27604	S.E.	39
	15/64	3/16	2	4	CoWSR5-1	47316	D.E.	42
	7/16	3/16	2-1/4	4	CoWR5-1	47416	D.E.	42
	1/2	3/8	2-3/8	4	CoRK5-2	47512	S.E.	42
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	15/64	3/16	2	4	CoWS5-1	41016	D.E.	30
	7/16	3/16	2-1/4	4	CoW5-1	41116	D.E.	31
	7/8	3/16	3-1/4	4	CoWE5-1	41216	D.E.	31
	15/64	3/8	2-3/4	4	CoASA5-2	45812	D.E.	31
	7/16	3/8	3-1/8	4	CoAA5-2	45914	D.E.	30
	1/2	3/8	2-3/8	4	CoA5-2	44112	S.E.	31
	4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	5/16	5/32***	1-1/4	4	ASF5	41412	S.E.	36
11/64	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	1/4	3/16	2	2	CoXS-172	24820	D.E.	22
	1/2	3/16	2-1/4	2	CoX-172	24920	D.E.	23
	7/16	3/8	3-1/8	2	CoBB172-2	29008	D.E.	22
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	1/2	3/8	3-1/4	3	CoCC172-2	32216	D.E.	29
	4 FLUTE CENTER CUTTING - 8% Cobalt							
	1/2	3/8	3-1/4	4	CoAA172-2	45916	D.E.	30
	Premium 8% Cobalt HS Steel							
	2 FLUTE BALL END - *8% Cobalt*							
	1/4	3/16	2	2	CoXSR-172	27328	D.E.	41
	1/2	3/16	2-1/4	2	CoXR-172	27428	D.E.	41
	7/16	3/8	3-1/8	2	CoRR172-2	27916	D.E.	39
3/16	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	9/32	3/16	2	2	CoXS6-1	24822	D.E.	22
	1/2	3/16	2-1/4	2	CoX6-1	24922	D.E.	23
	1	3/16	3-3/8	2	CoXE6-1	25010	D.E.	23
	9/32	3/8	2-3/4	2	CoBSB6-2	28906	D.E.	23
	9/32	3/8	2-3/16	2	CoBS6-2	28004	S.E.	27
	7/16	3/8	3-1/8	2	CoBB6-2	29010	D.E.	22
	7/16	3/8	2-5/16	2	CoB6-2	28206	S.E.	24
	7/16	3/8	2-5/16	2	CoB6-2FC *+.001 to +.0015*	28802	S.E.	27
	7/16	3/8	2-5/16	2	CoB6-2K *+.000 to -.0015*	28704	S.E.	27
	1/2 *1-1/8" Below Shank*	3/8	2-11/16	2	CoBL6-2	28504	S.E.	26
	7/16	3/8	3-1/8	2	CoSBB6-2**	29104	D.E.	23
	7/16	3/8	2-5/16	2	CoSB6-2**	28604	S.E.	26

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
3/16	**3 FLUTE CENTER CUTTING - *8% Cobalt***							
	1/2	3/8	3-1/4	3	CoCC6-2	32218	D.E.	29
	1/2	3/8	2-3/8	3	CoC6-2	32014	S.E.	28
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	9/32	3/16	2	4	CoWS6-1	41018	D.E.	30
	1/2	3/16	2-1/4	4	CoW6-1	41118	D.E.	31
	1	3/16	3-3/8	4	CoWE6-1	41218	D.E.	31
	9/32	3/8	2-3/4	4	CoASA6-2	45814	D.E.	31
	9/32	3/8	2-3/16	4	CoAS6-2	44012	S.E.	36
	1/2	3/8	3-1/4	4	CoAA6-2	45918	D.E.	30
	1/2	3/8	2-3/8	4	CoA6-2	44114	S.E.	31
	1/2 *+.001 to +.0015*	3/8	2-3/8	4	CoA6-2FC	44910	S.E.	35
	4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	1/2	3/16***	1-3/8	4	ASF6	41414	S.E.	36
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	9/32	3/16	2	2	CoXSR6-1	27330	D.E.	41
	1/2	3/16	2-1/4	2	CoXR6-1	27430	D.E.	41
	1 *1" Below Shank*	3/16	3-3/8	2	CoXER6-1	27518	D.E.	41
	9/32	3/8	2-3/4	2	CoRSR6-2	27832	D.E.	40
	7/16	3/8	3-1/8	2	CoRR6-2	27918	D.E.	39
	1/2	3/8	2-3/8	2	CoR6-2	27606	S.E.	39
	1/2 *1-1/8" Below Shank*	3/8	2-11/16	2	CoRL6-2	27704	S.E.	40
	9/32	3/16	2	4	CoWSR6-1	47318	D.E.	42
	1/2	3/16	2-1/4	4	CoWR6-1	47418	D.E.	42
	1/2	3/8	2-3/8	4	CoRK6-2	47514	S.E.	42
13/64	***Premium 8% Cobalt HS Steel***							
	2 FLUTE CENTER CUTTING - *8% Cobalt*							
	1/2	3/8	3-1/8	2	CoBB203-2	29012	D.E.	22
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	9/16	3/8	3-1/4	3	CoCC203-2	32220	D.E.	29
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	9/16	3/8	3-1/4	4	CoAA203-2	45920	D.E.	30
	2 FLUTE BALL END - *8% Cobalt*							
	1/2	3/8	3-1/8	2	CoRR203-2	27920	D.E.	39
7/32	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	21/64	3/8	2-7/8	2	CoBSB7-2	28908	D.E.	23
	1/2	3/8	3-1/8	2	CoBB7-2	29014	D.E.	22
	1/2	3/8	2-5/16	2	CoB7-2	28208	S.E.	24
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	9/16	3/8	3-1/4	3	CoCC7-2	32222	D.E.	29
	5/8	3/8	2-7/16	3	CoC7-2	32016	S.E.	28
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	1/2	3/8	3-1/8	2	CoRR7-2	27922	D.E.	39
	1/2	3/8	2-5/16	2	CoR7-2	27608	S.E.	39
	5/8	3/8	2-7/16	4	CoRK7-2	47516	S.E.	42
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	21/64	3/8	2-7/8	4	CoASA7-2	45816	D.E.	31
	9/16	3/8	3-1/4	4	CoAA7-2	45922	D.E.	30
	5/8	3/8	2-7/16	4	CoA7-2	44116	S.E.	31
	4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	9/16	7/32***	1-5/8	4	ASF7	41416	S.E.	36

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

15/64 to 5/16 End Mills by Diameter

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
15/64	**2 FLUTE CENTER CUTTING - *8% COBALT***							
	1/2	3/8	3-1/8	2	CoBB234-2	29016	D.E.	22
	3 FLUTE CENTER CUTTING - *8% COBALT*							
	5/8	3/8	3-3/8	3	CoCC234-2	32224	D.E.	29
	4 FLUTE CENTER CUTTING - *8% COBALT*							
	5/8	3/8	3-3/8	4	CoAA234-2	45924	D.E.	30
	2 FLUTE BALL END - *8% COBALT*							
	1/2	3/8	3-1/8	2	CoRR234-2	27924	D.E.	39
1/4	**2 FLUTE CENTER CUTTING - *8% COBALT***							
	3/8	3/8	2-7/8	2	CoBSB8-2	28910	D.E.	23
	3/8	3/8	2-1/4	2	CoBS8-2	28006	S.E.	27
	1/2	3/8	3-1/8	2	CoBB8-2	29018	D.E.	22
	1/2	3/8	2-5/16	2	CoB8-2	28210	S.E.	24
	1/2	3/8	2-5/16	2	CoB8-2FC *+.001 to +.0015*	28804	S.E.	27
	1/2	3/8	2-5/16	2	CoB8-2K *+.000 to .-0015*	28706	S.E.	27
	5/8 *1-1/2" Below Shank*	3/8	3-1/16	2	CoBL8-2	28506	S.E.	26
	1/2	3/8	3-1/8	2	CoSBB8-2**	29106	D.E.	23
	1/2	3/8	2-5/16	2	CoSB8-2**	28606	S.E.	26
	SKI-KUT MILLS FOR ALUMINUM - *HS Steel*							
	Roughing							
	5/8	3/8	2-7/16	2	SKB8-2	57010	S.E.	50
	1-1/4	3/8	3-1/16	2	SKB8-2A	57012	S.E.	50
	1-3/4	3/8	3-9/16	2	SKB8-2B	57014	S.E.	50
	Finishing							
	5/8	3/8	2-7/16	2	SKX8-2	57202	S.E.	50
	1-1/4	3/8	3-1/16	2	SKX8-2A	57204	S.E.	50
	1-3/4	3/8	3-9/16	2	SKX8-2B	57206	S.E.	50
	SKI-CARB MILLS FOR ALUMINUM - *Solid Carbide*							
	3/4	3/8	2-7/16	2	SKXC8-2	57410	S.E.	52
	1-1/4	3/8	3-1/16	2	SKXC8-2A	57412	S.E.	52
	1-3/4	3/8	3-9/16	2	SKXC8-2B	57414	S.E.	52
	3 FLUTE CENTER CUTTING - *8% COBALT*							
	5/8	3/8	3-3/8	3	CoCC8-2	32226	D.E.	29
	5/8	3/8	2-7/16	3	CoC8-2	32018	S.E.	28
	1-1/4	3/8	3-1/8	3	CoCL8-2	32110	S.E.	29
	3 FLUTE CTR. CUTTING - *8% COBALT Rougher - Coarse Pitch*							
	1/4	3/8	2-1/16	3	WRCCS8-2	64108	S.E.	64
	3 FLUTE CTR. CUTTING - *8% COBALT Rougher - Fine Pitch*							
	1/4	3/8	2-1/16	3	WRCCFS8-2	64158	S.E.	64
	4 FLUTE CENTER CUTTING - *8% COBALT*							
	3/8	3/8	2-7/8	4	CoASA8-2	45818	D.E.	31
	3/8	3/8	2-1/4	4	CoAS8-2	44014	S.E.	36
	5/8	3/8	3-3/8	4	CoAA8-2	45926	D.E.	30
	5/8	3/8	2-7/16	4	CoA8-2	44118	S.E.	31
	5/8	3/8	2-1/2	4	CoA8-2FC *+.001 to +.0015*	44912	S.E.	35
	1-1/4	3/8	3-1/16	4	CoA8-2A	44310	S.E.	33
	1-3/4	3/8	3-9/16	4	CoA8-2B	44410	S.E.	34
	2 - 4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	3/8	1/4***	1-7/16	2	BSF8	25202	S.E.	26
	5/8	1/4***	1-11/16	4	ASF8	41418	S.E.	36
	3 FLUTE CENTER CUTTING - *HS Steel Rougher - Coarse Pitch*							
	5/8	3/8	2-7/16	3	WR8-2	64000	S.E.	57

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1/4	**3 FLUTE CENTER CUTTING - *8% COBALT Rougher - Coarse Pitch***							
	5/8	3/8	2-7/16	3	WRC8-2	64410	S.E.	59
	3 FLUTE CENTER CUTTING - *8% COBALT Rougher - Fine Pitch*							
	5/8	3/8	2-7/16	3	WRCF8-2	64902	S.E.	62
	2 - 4 FLUTE BALL END - *8% COBALT*							
	3/8	3/8	2-7/8	2	CoRSR8-2	27834	D.E.	40
	1/2	3/8	3-1/8	2	CoRR8-2	27926	D.E.	39
	5/8	3/8	2-7/16	2	CoR8-2	27610	S.E.	39
	5/8 *1-/2" Below Shank*	3/8	3-1/16	2	CoRL8-2	27706	S.E.	40
	5/8	3/8	2-7/16	4	CoRK8-2	47518	S.E.	42
	1	3/8	2-13/16	4	CoRK8-2A	47520	S.E.	42
	1-1/4	3/8	3-1/16	4	CoRK8-2B	47522	S.E.	42
	1-1/2	3/8	3-5/16	4	CoRK8-2C	47524	S.E.	42
17/64	***Premium 8% COBALT HS Steel***							
	2 FLUTE CENTER CUTTING - *8% COBALT*							
	9/16	3/8	3-1/8	2	CoBB266-2	29020	D.E.	22
	3 FLUTE CENTER CUTTING - *8% COBALT*							
	11/16	3/8	3-3/8	3	CoCC266-2	32228	D.E.	29
	4 FLUTE CENTER CUTTING - *8% COBALT*							
	11/16	3/8	3-3/8	4	CoAA266-2	45928	D.E.	30
	2 FLUTE BALL END - *8% COBALT*							
	9/16	3/8	3-1/8	2	CoRR266-2	27928	D.E.	39
9/32	**2 FLUTE CENTER CUTTING - *8% COBALT***							
	9/16	3/8	3-1/8	2	CoBB9-2	29022	D.E.	22
	9/16	3/8	2-5/16	2	CoB9-2	28212	S.E.	24
	3 FLUTE CENTER CUTTING - *8% COBALT*							
	11/16	3/8	3-3/8	3	CoCC9-2	32230	D.E.	29
	3/4	3/8	2-1/2	3	CoC9-2	32020	S.E.	28
	2 - 4 FLUTE BALL END - *8% COBALT*							
	9/16	3/8	3-1/8	2	CoRR9-2	27930	D.E.	39
	9/16	3/8	2-5/16	2	CoR9-2	27612	S.E.	39
	3/4	3/8	2-1/2	4	CoRK9-2	47526	S.E.	42
	4 FLUTE CENTER CUTTING - *8% COBALT*							
	11/16	3/8	3-3/8	4	CoAA9-2	46002	D.E.	30
	3/4	3/8	2-1/2	4	CoA9-2	44120	S.E.	31
19/64	**2 FLUTE CENTER CUTTING - *8% COBALT***							
	9/16	3/8	3-1/8	2	CoBB297-2	29024	D.E.	22
	3 FLUTE CENTER CUTTING - *8% COBALT*							
	3/4	3/8	3-1/2	3	CoCC297-2	32232	D.E.	29
	4 FLUTE CENTER CUTTING - *8% COBALT*							
	3/4	3/8	3-1/2	4	CoAA297-2	46004	D.E.	30
	2 FLUTE BALL END - *8% COBALT*							
	9/16	3/8	3-1/8	2	CoRR297-2	27932	D.E.	39
5/16	**2 FLUTE CENTER CUTTING - *8% COBALT***							
	9/16	3/8	3-1/8	2	CoBB10-2	29026	D.E.	22
	9/16	3/8	2-5/16	2	CoB10-2	28214	S.E.	24
	9/16	3/8	2-5/16	2	CoB10-2FC *+.001 to +.0015*	28806	S.E.	27
	9/16	3/8	2-5/16	2	CoB10-2K *+.0000 to -.0015*	28708	S.E.	27
	3/4 *1-3/4" Below Shank*	3/8	3-5/16	2	CoBL10-2	28508	S.E.	26

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
5/16	**2 FLUTE CENTER CUTTING - *8% COBALT***							
	9/16	3/8	3-1/16	2	CoSBB10-2**	29108	D.E.	23
	9/16	3/8	2-5/16	2	CoSB10-2**	28608	S.E.	26
	SKI-KUT MILLS FOR ALUMINUM - *HS Steel*							
	Roughing							
	3/4	3/8	2-1/2	2	SKB10-2	57020	S.E.	50
	1-3/8	3/8	3-3/16	2	SKB10-2A	57022	S.E.	50
	2	3/8	3-3/4	2	SKB10-2B	57024	S.E.	50
	Finishing							
	3/4	3/8	2-1/2	2	SKX10-2	57208	S.E.	50
	1-3/8	3/8	3-3/16	2	SKX10-2A	57210	S.E.	50
	2	3/8	3-3/4	2	SKX10-2B	57212	S.E.	50
	SKI-CARB MILLS FOR ALUMINUM - *Solid Carbide*							
	1-3/8	3/8	3-1/8	2	SKXC10-2A	57420	S.E.	52
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/4	3/8	3-1/2	3	CoCC10-2	32234	D.E.	29
	3/4	3/8	2-1/2	3	CoC10-2	32022	S.E.	28
	1-3/8	3/8	3-3/16	3	CoCL10-2	32112	S.E.	29
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/4	3/8	3-1/2	4	CoAA10-2	46006	D.E.	30
	3/4	3/8	2-1/2	4	CoA10-2	44122	S.E.	31
	3/4	3/8	2-1/2	4	CoA10-2FC *+.001 to -.0015*	44914	S.E.	35
	1-3/8	3/8	3-1/8	4	CoA10-2A	44312	S.E.	33
	2	3/8	3-3/4	4	CoA10-2B	44412	S.E.	34
	2 - 4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	15/32	5/16***	1-9/16	2	BSF10	25204	S.E.	26
	11/16	5/16***	1-3/4	4	ASF10	41420	S.E.	36
	3 FLUTE NCC - *HS Steel Rougher - Coarse Pitch*							
	3/4	3/8	2-1/2	3	WR10-2	64002	S.E.	57
	3 FLUTE NCC - *8% Cobalt Rougher - Coarse Pitch*							
	3/4	3/8	2-1/2	3	WRC10-2	64420	S.E.	59
	3 FLUTE NCC - *8% Cobalt Rougher - Fine Pitch*							
	3/4	3/8	2-1/2	3	WRCF10-2	64904	S.E.	62
	Premium 8% COBALT HS Steel							
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	9/16	3/8	3-1/8	2	CoRR10-2	27934	D.E.	39
	3/4	3/8	2-1/2	2	CoR10-2	27614	S.E.	39
	3/4	3/8	3-5/16	2	CoRL10-2	27708	S.E.	40
	1-3/4" Below Shank							
	3/4	3/8	2-1/2	4	CoRK10-2	47528	S.E.	42
	1	3/8	2-3/4	4	CoRK10-2A	47530	S.E.	42
	1-1/2	3/8	3-1/4	4	CoRK10-2C	47532	S.E.	42
21/64	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	9/16	3/8	3-1/8	2	CoBB328-2	29028	D.E.	22
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/4	3/8	3-1/2	3	CoCC328-2	32236	D.E.	29
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/4	3/8	3-1/2	4	CoAA328-2	46008	D.E.	30
	2 FLUTE BALL END - *8% Cobalt*							
	9/16	3/8	3-1/8	2	CoRR328-2	27936	D.E.	39

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
11/32	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	9/16	3/8	3-1/8	2	CoBB11-2	29030	D.E.	22
	9/16	3/8	2-5/16	2	CoB11-2	28216	S.E.	24
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/4	3/8	3-1/2	3	CoCC11-2	32238	D.E.	29
	3/4	3/8	2-1/2	3	CoC11-2	32024	S.E.	28
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	9/16	3/8	3-1/8	2	CoRR11-2	27938	D.E.	39
	9/16	3/8	2-5/16	2	CoR11-2	27616	S.E.	39
	3/4	3/8	2-1/2	4	CoRK11-2	47534	S.E.	42
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/4	3/8	3-1/2	4	CoAA11-2	46010	D.E.	30
	3/4	3/8	2-1/2	4	CoA11-2	44124	S.E.	31
23/64	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	9/16	3/8	3-1/8	2	CoBB359-2	29032	D.E.	22
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/4	3/8	3-1/2	3	CoCC359-2	32240	D.E.	29
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/4	3/8	3-1/2	4	CoAA359-2	46012	D.E.	30
	2 FLUTE BALL END - *8% Cobalt*							
	9/16	3/8	3-1/8	2	CoRR359-2	27940	D.E.	30
3/8	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	9/16	3/8	3-1/8	2	CoBB12-2	29034	D.E.	22
	9/16	3/8	2-5/16	2	CoB12-2	28218	S.E.	24
	9/16	3/8	2-5/16	2	CoB12-2FC *+.001 to +.0015*	28808	S.E.	27
	9/16	3/8	2-5/16	2	CoB12-2K *+.0000 to -.0015*	28710	S.E.	27
	1	3/8	2-3/4	2	CoBMF12-2	28302	S.E.	25
	1-1/2	3/8	3-1/4	2	CoBLF12-2	28402	S.E.	25
	3/4	3/8	3-5/16	2	CoBL12-2	28510	S.E.	26
	1-3/4" Below Shank							
	9/16	3/8	3-1/16	2	CoSBB12-2**	29910	D.E.	23
	9/16	3/8	2-5/16	2	CoSB12-2**	28610	S.E.	26
	SKI-KUT MILLS FOR ALUMINUM - *HS Steel*							
	Roughing							
	3/4	3/8	2-1/2	2	SKB12-2	57030	S.E.	50
	1-1/2	3/8	3-1/4	2	SKB12-2A	57032	S.E.	50
	2-1/2	3/8	4-1/4	2	SKB12-2B	57034	S.E.	50
	Finishing							
	3/4	3/8	2-1/2	2	SKX12-2	57214	S.E.	50
	1-1/2	3/8	3-1/4	2	SKX12-2A	57216	S.E.	50
	2-1/2	3/8	4-1/4	2	SKX12-2B	57218	S.E.	50
	SKI-CARB MILLS FOR ALUMINUM - *Solid Carbide*							
	3/4	3/8	2-1/2	2	SKXC12-2	57430	S.E.	52
	1-1/2	3/8	3-1/4	2	SKXC12-2A	57432	S.E.	52
	2-1/2	3/8	4-1/4	2	SKXC12-2B	57434	S.E.	52
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	3/4	3/8	3-1/2	3	CoCC12-2	32242	D.E.	29
	3/4	3/8	2-1/2	3	CoC12-2	32026	S.E.	28
	1-1/2	3/8	3-1/4	3	CoCL12-2	32114	S.E.	29
	3 FLUTE CENTER CUTTING - *HS Steel Rougher - Coarse Pitch*							
	3/4	3/8	2-1/2	3	WRF12-2	64302	S.E.	58

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
3/8	**4 FLUTE CENTER CUTTING - *8% Cobalt***							
	3/4	3/8	3-1/2	4	CoAA12-2	46014	D.E.	30
	3/4	3/8	2-1/2	4	CoA12-2	44126	S.E.	31
	3/4	3/8	2-1/2	4	CoA12-2FC *+.001 to +.0015*	44916	S.E.	35
	1-1/2	3/8	3-1/4	4	CoA12-2A	44314	S.E.	33
	2-1/2	3/8	4-1/4	4	CoA12-2B	44414	S.E.	34
	4 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Coarse Pitch*							
	3/8	3/8	2-5/32	4	WRCCS12-2	64112	S.E.	64
	4 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	3/8	3/8	2-5/32	4	WRCCFS12-2	64162	S.E.	64
	2 - 4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	3/4	3/8***	1-13/16	4	ASF12	41422	S.E.	36
	9/16	3/8***	1-5/8	2	BSF12	25206	S.E.	26
	4 FLUTE NCC - *HS Steel Rougher - Coarse Pitch*							
	3/4	3/8	2-1/2	4	WR12-2	64004	S.E.	57
	4 FLUTE NCC - *8% Cobalt Rougher - Coarse Pitch*							
	3/4	3/8	2-1/2	4	WRC12-2	64430	S.E.	59
	4 FLUTE NCC - *8% Cobalt Rougher - Fine Pitch*							
	3/4	3/8	2-1/2	4	WRCF12-2	64906	S.E.	62
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	9/16	3/8	3-1/8	2	CoRR12-2	27942	D.E.	39
	3/4	3/8	2-1/2	2	CoR12-2	27618	S.E.	39
	3/4	3/8	3-5/16	2	CoRL12-2	27710	S.E.	40
	1-3/4" Below Shank							
	3/4	3/8	2-1/2	4	CoRK12-2	47536	S.E.	42
	1	3/8	2-3/4	4	CoRK12-2A	47538	S.E.	42
	1-1/2	3/8	3-1/4	4	CoRK12-2B	47540	S.E.	42
	2	3/8	3-3/4	4	CoRK12-2C	47542	S.E.	42
	2-1/2	3/8	4-1/4	4	CoRK12-2D	47544	S.E.	42
	4 FLUTE CTR. CUTTING - *HS Steel Crest-Kut*							
	3/4	3/8	2-1/2	4	KAC12-2	66102	S.E.	47
	1-3/8	3/8	3-1/8	4	KAC12-2A	66104	S.E.	47
	4 FLUTE NON-CENTER CUTTING - *HS Steel Crest-Kut*							
	3/4	3/8	2-1/2	4	KA12-2	65802	S.E.	46
	1-3/8	3/8	3-1/8	4	KA12-2A	65804	S.E.	46
	4 FLUTE NCC CREST-KUT PREMIUM - *8% Cobalt*							
	3/4	3/8	2-1/2	4	KPA12-2	66302	S.E.	48
	1-3/8	3/8	3-1/8	4	KPA12-2A	66304	S.E.	48
25/64	**2 - 4 FLUTE CENTER CUTTING - *8% Cobalt***							
	13/16	1/2	3-3/4	2	CoBB391-3	29036	D.E.	22
	1	1/2	4-1/8	4	CoAA391-3	46016	D.E.	30
13/32	**2 FLUTE CENTER CUTTING - *8% Cobalt***							
	13/16	3/8	2-1/2	2	CoB13-2	28220	S.E.	24
	13/16	1/2	3-13/16	2	CoBB13-3	29038	D.E.	22
	2 FLUTE CENTER CUTTING - *HS Steel*							
	13/16	1/2	3-13/16	2	BB13-3	26202	D.E.	22
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	1	3/8	2-11/16	3	CoC13-2	32028	S.E.	28
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	13/16	3/8	2-1/2	2	CoR13-2	27620	S.E.	39
	1	3/8	2-11/16	4	CoRK13-2	47546	S.E.	42

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
13/32	**4 FLUTE CENTER CUTTING - *8% Cobalt***							
	1	3/8	2-11/16	4	CoA13-2	44128	S.E.	31
	1	1/2	4-3/16	4	CoAA13-3	46018	D.E.	30
	4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	1	1/2	4-3/16	4	AA13-3	42540	D.E.	30
27/64	**2 - 4 FLUTE CENTER CUTTING - *8% Cobalt***							
	13/16	1/2	3-3/4	2	CoBB422-3	29040	D.E.	22
	1	1/2	4-1/8	4	CoAA422-3	46020	D.E.	30
7/16	**2 - 4 FLUTE CENTER CUTTING - *8% Cobalt***							
	13/16	3/8	2-1/2	2	CoB14-2	28222	S.E.	24
	13/16	1/2	3-3/4	2	CoBB14-3	29042	D.E.	22
	1	1/2	4-1/8	4	CoAA14-3	46022	D.E.	30
	2 FLUTE CENTER CUTTING - *HS Steel*							
	13/16	1/2	3-3/4	2	BB14-3	26204	D.E.	22
	13/16	1/2	3-3/4	2	SBB14-3**	26402	D.E.	23
	2 FLUTE BALL END - *HS Steel*							
	13/16	1/2	3-3/4	2	RR14-3	27240	D.E.	39
	1	1/2	3	2	R14-3	27040	S.E.	40
	1	1/2	3-11/16	2	RL14-3	27140	S.E.	40
	1-7/8" Below Shank							
	SKI-KUT FOR ALUMINUM - *HS Steel*							
	Roughing							
	1	3/8	2-11/16	2	SKB14-2	57040	S.E.	50
	1-3/4	1/2	3-3/4	2	SKB14-3A	57042	S.E.	50
	2-3/4	1/2	4-3/4	2	SKB14-3B	57044	S.E.	50
	Finishing							
	1	3/8	2-11/16	2	SKX14-2	57220	S.E.	50
	1-3/4	1/2	3-3/4	2	SKX14-3A	57222	S.E.	50
	2-3/4	1/2	4-3/4	2	SKX14-3B	57224	S.E.	50
	3 FLUTE CENTER CUTTING - *8% Cobalt*							
	1	3/8	2-11/16	3	CoC14-2	32030	S.E.	28
	3 FLUTE CENTER CUTTING - *HS Steel*							
	1	1/2	4-1/8	3	CC14-3	31220	D.E.	29
	1-3/4	1/2	3-3/4	3	CL14-3	31120	S.E.	29
	4 FLUTE CENTER CUTTING - *8% Cobalt*							
	1	3/8	2-11/16	4	CoA14-2	44130	S.E.	31
	4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	1	1/2	4-1/8	4	AA14-3	42542	D.E.	30
	1-3/4	1/2	3-3/4	4	AL14-3	41730	S.E.	33
	7/8	7/16***	2-3/16	4	ASF14	41424	S.E.	36
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	13/16	3/8	2-1/2	2	CoR14-2	27622	S.E.	39
	1	3/8	2-11/16	4	CoRK14-2	47548	S.E.	42
29/64	**2 - 4 FLUTE CENTER CUTTING - *8% Cobalt***							
	13/16	1/2	3-3/4	2	CoBB453-3	29044	D.E.	22
	1	1/2	4-1/8	4	CoAA453-3	46024	D.E.	30
15/32	**2 - 4 FLUTE CENTER CUTTING - *8% Cobalt***							
	13/16	1/2	3-3/4	2	CoBB15-3	29046	D.E.	22
	13/16	3/8	2-1/2	2	CoB15-2	28224	S.E.	24
	1	1/2	4-1/8	4	CoAA15-3	46026	D.E.	30
	1	3/8	2-11/16	4	CoA15-2	44132	S.E.	31
	2 FLUTE CENTER CUTTING - *HS Steel*							
	13/16	1/2	3-3/4	2	BB15-3	26206	D.E.	22

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
15/32	**4 FLUTE NON-CENTER CUTTING - *HS Steel***							
	1	1/2	4-1/8	4	AA15-3	42544	D.E.	30
31/64	**2 - 4 FLUTE CENTER CUTTING - *8% Cobalt***							
	13/16	1/2	3-3/4	2	CoBB484-3	29048	D.E.	22
	1	1/2	4-1/8	4	CoAA484-3	46028	D.E.	30
1/2	**2 FLUTE CENTER CUTTING - *HS Steel***							
	13/16	3/8	2-1/2	2	B16-2	25302	S.E.	24
	13/16	1/2	3-3/4	2	BB16-3	26208	D.E.	22
	1	1/2	3	2	B16-3	25304	S.E.	24
	1	1/2	3	2	B16-3K	25902	S.E.	27
					+.000 to -.0015			
	1-1/2	1/2	3-1/2	2	BMF16-3	25402	S.E.	25
	2	1/2	4	2	BLF16-3	25502	S.E.	25
	1	1/2	4	2	BL16-3	25602	S.E.	26
	2-1/4" Below Shank							
	13/16	1/2	3-3/4	2	SBB16-3**	26404	D.E.	23
	1	1/2	3	2	SB16-3**	25702	S.E.	26
	3/4	1/2***	2-1/16	2	BSF16	25208	S.E.	26
	2 FLUTE CENTER CUTTING - *8% Cobalt*							
	13/16	3/8	2-1/2	2	CoB16-2	28226	S.E.	24
	1	1/2	3	2	CoB16-3	28228	S.E.	24
	13/16	1/2	3-3/4	2	CoBB16-3	29050	D.E.	22
	2 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	1-1/4	1/2	3-1/4	2	KB16-3	65602	S.E.	45
	2	1/2	4	2	KB16-3A	65604	S.E.	45
	3	1/2	5	2	KB16-3B	65606	S.E.	45
	SKI-KUT FOR ALUMINUM - *HS Steel*							
	Roughing							
	1-1/4	1/2	3-1/4	2	SKB16-3	57050	S.E.	50
	2	1/2	4	2	SKB16-3A	57052	S.E.	50
	3	1/2	5	2	SKB16-3B	57054	S.E.	50
	Finishing							
	1-1/4	1/2	3-1/4	2	SKX16-3	57226	S.E.	50
	2	1/2	4	2	SKX16-3A	57228	S.E.	50
	3	1/2	5	2	SKX16-3B	57230	S.E.	50
	SKI-CARB FOR ALUMINUM - *Solid Carbide*							
	1-1/4	1/2	3-1/4	2	SKXC16-3	57440	S.E.	52
	2	1/2	4	2	SKXC16-3A	57442	S.E.	52
	3	1/2	5	2	SKXC16-3B	57444	S.E.	52
	3 FLUTE CENTER CUTTING - *HS Steel*							
	1	3/8	2-11/16	3	C16-2	31020	S.E.	28
	1	1/2	4-1/8	3	CC16-3	31222	D.E.	29
	1-1/4	1/2	3-1/4	3	C16-3	31022	S.E.	28
	2	1/2	4	3	CL16-3	31122	S.E.	29
	3 FLUTE CENTER CUTTING - *HS Steel Roughers - Coarse Pitch*							
	1-1/4	1/2	3-1/4	3	WRF16-3A	64304	S.E.	58
	2	1/2	4	3	WRF16-3B	64306	S.E.	58
	3 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	1-1/4	1/2	3-1/4	3	KC16-3	65702	S.E.	45
	2	1/2	4	3	KC16-3A	65704	S.E.	45
	3	1/2	5	3	KC16-3B	65706	S.E.	45
	4 FLUTE CENTER CUTTING - *HS Steel*							
	1	1/2	4-1/8	4	AAC16-3	43040	D.E.	36
	1-1/4	1/2	3-1/4	4	AC16-3	42640	S.E.	37
	2	1/2	4	4	AC16-3A	42840	S.E.	38
	3	1/2	5	4	AC16-3B	42940	S.E.	38

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1/2	**4 - 6 FLUTE CENTER CUTTING - *8% Cobalt***							
	1	1/2	4-1/8	4	CoAA16-3	46030	D.E.	30
	1	3/8	2-11/16	4	CoA16-2	44134	S.E.	31
	1-1/4	1/2	3-1/4	4	CoAC16-3	44136	S.E.	31
	1-1/4	1/2	3-1/4	6	CoKC16-3	44540	S.E.	31
	2	1/2	4	4	COAC16-3A	44240	S.E.	33
	3	1/2	5	4	CoAC16-3B	44316	S.E.	34
	4	1/2	6	4	CoAC16-3C	44416	S.E.	34
	4 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	1-1/4	1/2	3-1/4	4	WRCC16-3A	64602	S.E.	60
	2	1/2	4	4	WRCC16-3B	64604	S.E.	60
	4 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Fine Pitch*							
	1-1/4	1/2	3-1/4	4	WRCCF16-3A	65002	S.E.	63
	2	1/2	4	4	WRCCF16-3B	65004	S.E.	63
	4 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	1-1/4	1/2	3-1/4	4	KAC16-3	66106	S.E.	47
	2	1/2	4	4	KAC16-3A	66108	S.E.	47
	3	1/2	5	4	KAC16-3B	66110	S.E.	47
	4 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Coarse Pitch*							
	1/2	1/2	2-1/2	4	WRCCS16-3	64116	S.E.	64
	4 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	1/2	1/2	2-1/2	4	WRCCFS16-3	64166	S.E.	64
	4 FLUTE CENTER CUTTING CREST-KUT - *8% Cobalt*							
	2	1/2	4	4	KPAC16-3A	66502	S.E.	49
	3	1/2	5	4	KPAC16-3B	66504	S.E.	49
	4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	1	3/8	2-11/16	4	A16-2	41530	S.E.	32
	1	1/2	4-1/8	4	AA16-3	42546	D.E.	30
	1-1/4	1/2	3-1/4	4	A16-3	41532	S.E.	32
	2	1/2	4	4	AL16-3	41732	S.E.	33
	3	1/2	5	4	AE16-3	41830	S.E.	34
	15/16	1/2***	2-1/4	4	ASF16	41426	S.E.	36
	4 FLUTE NCC - *HS Steel Roughers - Coarse Pitch*							
	1	1/2	3	4	WR16-3	64006	S.E.	57
	1-1/4	1/2	3-1/4	4	WR16-3A	64008	S.E.	57
	2	1/2	4	4	WR16-3B	64010	S.E.	57
	4 FLUTE NCC - *PM Vanadium Roughers - Coarse Pitch*							
	1-1/4	1/2	3-1/4	4	WRT16-3A	64802	S.E.	61
	2	1/2	4	4	WRT16-3B	64804	S.E.	61
	4 FLUTE NCC CREST-KUT - *HS Steel*							
	1-1/4	1/2	3-1/4	4	KA16-3	65806	S.E.	46
	2	1/2	4	4	KA16-3A	65808	S.E.	46
	3	1/2	5	4	KA16-3B	65810	S.E.	46
	4 FLUTE NCC CREST-KUT PREMIUM - *8% Cobalt*							
	1-1/4	1/2	3-1/4	4	KPA16-3	66306	S.E.	48
	2	1/2	4	4	KPA16-3A	66308	S.E.	48
	3	1/2	5	4	KPA16-3B	66310	S.E.	48
	4 FLUTE NCC - *8% Cobalt Roughers - Coarse Pitch*							
	1	1/2	3	4	WRC16-3	64440	S.E.	59
	1-1/4	1/2	3-1/4	4	WRC16-3A	64442	S.E.	59
	2	1/2	4	4	WRC16-3B	64444	S.E.	59
	4 FLUTE NCC - *8% Cobalt Roughers - Fine Pitch*							
	1-1/4	1/2	3-1/4	4	WRCF16-3A	64908	S.E.	62
	2	1/2	4	4	WRCF16-3B	64910	S.E.	62

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

1/2 to 5/8 **End Mills by Diameter**

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1/2	**2 - 4 FLUTE BALL END - *HS Steel***							
	13/16	1/2	3-3/4	2	RR16-3	27242	D.E.	39
	1	1/2	3	2	R16-3	27042	S.E.	40
	1	1/2	4	2	RL16-3	27142	S.E.	40
	2-1/4" Below Shank							
	1	1/2	3	4	RK16-3	47130	S.E.	43
	1-1/2	1/2	3-1/2	4	RK16-3A	47132	S.E.	43
	2	1/2	4	4	RK16-3B	47134	S.E.	43
	2-1/2	1/2	4-1/2	4	RK16-3C	47136	S.E.	43
	3	1/2	5	4	RK16-3D	47138	S.E.	43
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	1	1/2	3	2	CoR16-3	27624	S.E.	39
	1-1/4	1/2	3-1/4	4	CoAR16-3	47550	S.E.	42
	4 FLT. BALL END CTR. CUTTING - *8% Cobalt Roughers - Crs. Pitch*							
	1-1/4	1/2	3-1/4	4	WRCR16-3A	64702	S.E.	60
	2	1/2	4	4	WRCR16-3B	64704	S.E.	60
	4 FLT. BALL END CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	1-1/4	1/2	3-1/4	4	WRCRF16-3A	64202	S.E.	63
9/16	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-1/8	1/2	3-1/8	2	B18-3	25306	S.E.	24
	1-1/8	5/8	4-1/2	2	BB18-4	26210	D.E.	22
	2 FLUTE BALL END - *HS Steel*							
	1	1/2	3	2	R18-3	27044	S.E.	40
	3 FLUTE CENTER CUTTING - *HS Steel*							
	1-1/4	5/8	5	3	CC18-4	31224	D.E.	29
	1-3/8	1/2	3-3/8	3	C18-3	31024	S.E.	28
	4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	1-3/8	1/2	3-3/8	4	A18-3	41534	S.E.	32
	1-3/8	5/8	5	4	AA18-4	42548	D.E.	30
	1	9/16***	2-5/16	4	ASF18	41428	S.E.	36
5/8	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-1/8	1/2	3-1/8	2	B20-3	25308	S.E.	24
	1-1/8	5/8	4-1/2	2	BB20-4	26212	D.E.	22
	1-5/16	5/8	3-7/16	2	B20-4	25310	S.E.	24
	1-5/16	5/8	3-7/16	2	B20-4K	25904	S.E.	27
					+.000 to -.0015			
	1-5/8	5/8	3-3/4	2	BMF20-4	25404	S.E.	25
	2	5/8	4-1/8	2	BLF20-4	25504	S.E.	25
	1-3/8	5/8	4-5/8	2	BL20-4	25604	S.E.	26
	2-3/4" Below Shank							
	1-1/8	5/8	4-1/2	2	SBB20-4**	26406	D.E.	23
	1-5/16	5/8	3-7/16	2	SB20-4**	25704	S.E.	26
	15/16	5/8***	2-5/16	2	BSF20	25210	S.E.	26
	2 FLUTE CENTER CUTTING - *8% Cobalt*							
	1-5/16	5/8	3-7/16	2	CoB20-4	28230	S.E.	24
	2 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	1-5/8	5/8	3-3/4	2	KB20-4	65608	S.E.	45
	2-1/2	5/8	4-5/8	2	KB20-4A	65610	S.E.	45
	4	5/8	6-1/8	2	KB20-4B	65612	S.E.	45
	SKI-KUT MILLS FOR ALUMINUM - *HS Steel*							
	Roughing							
	1-5/8	5/8	3-3/4	2	SKB20-4	57060	S.E.	50
	2-1/2	5/8	4-5/8	2	SKB20-4A	57062	S.E.	50
	4	5/8	6-1/8	2	SKB20-4C	57064	S.E.	50
	Finishing							
	1-5/8	5/8	3-3/4	2	SKX20-4	57232	S.E.	50
	2-1/2	5/8	4-5/8	2	SKX20-4A	57234	S.E.	50
	4	5/8	6-1/8	2	SKX20-4C	57324	S.E.	50

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
5/8	**SKI-CARB MILLS FOR ALUMINUM - *Solid Carbide***							
	1-5/8	5/8	3-3/4	2	SKXC20-4	57450	S.E.	52
	2-1/2	5/8	4-5/8	2	SKXC20-4A	57452	S.E.	52
	3 FLUTE CENTER CUTTING - *HS Steel*							
	1-1/4	5/8	5	3	CC20-4	31226	D.E.	29
	1-3/8	1/2	3-3/8	3	C20-3	31026	S.E.	28
	1-5/8	5/8	3-3/4	3	C20-4	31028	S.E.	28
	2-1/2	5/8	4-5/8	3	CL20-4	31124	S.E.	29
	3 FLUTE CENTER CUTTING - *HS Steel Roughers - Coarse Pitch*							
	1-5/8	5/8	3-3/4	3	WRF20-4	64308	S.E.	58
	2-1/2	5/8	4-5/8	3	WRF20-4B	64310	S.E.	58
	3 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	1-5/8	5/8	3-3/4	3	KC20-4	65708	S.E.	45
	2-1/2	5/8	4-5/8	3	KC20-4A	65710	S.E.	45
	4	5/8	6-1/8	3	KC20-4B	65712	S.E.	45
	4 FLUTE CENTER CUTTING - *HS Steel*							
	1-3/8	5/8	5	4	AAC20-4	43042	D.E.	36
	1-5/8	5/8	3-3/4	4	AC20-4	42642	S.E.	37
	2-1/2	5/8	4-5/8	4	AC20-4A	42842	S.E.	38
	4	5/8	6-1/8	4	AC20-4B	42942	S.E.	38
	4 - 6 FLUTE CENTER CUTTING - *8% Cobalt*							
	1-5/8	5/8	3-3/4	4	CoAC20-4	44138	S.E.	31
	1-5/8	5/8	3-3/4	6	CoKC20-4	44542	S.E.	31
	2-1/2	5/8	4-5/8	4	CoAC20-4A	44242	S.E.	33
	3	5/8	5-1/8	4	CoAC20-4C	44318	S.E.	34
	4	5/8	6-1/8	4	CoAC20-4B	44418	S.E.	34
	4 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	1-5/8	5/8	3-3/4	4	WRCC20-4	64606	S.E.	60
	2-1/2	5/8	4-5/8	4	WRCC20-4B	64608	S.E.	60
	4 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Fine Pitch*							
	1-5/8	5/8	3-3/4	4	WRCCF20-4	65006	S.E.	63
	2-1/2	5/8	4-5/8	4	WRCCF20-4B	65008	S.E.	63
	4 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Coarse Pitch*							
	5/8	5/8	2-3/4	4	WRCCS20-4	64120	S.E.	64
	4 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	5/8	5/8	2-3/4	4	WRCCFS20-4	64168	S.E.	64
	4 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	1-5/8	5/8	3-3/4	4	KAC20-4	66112	S.E.	47
	2-1/2	5/8	4-5/8	4	KAC20-4A	66114	S.E.	47
	4	5/8	6-1/8	4	KAC20-4B	66116	S.E.	47
	4 FLUTE CENTER CUTTING CREST-KUT - *8% Cobalt*							
	2-1/2	5/8	4-5/8	4	KPAC20-4A	66506	S.E.	49
	4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	1-3/8	1/2	3-3/8	4	A20-3	41536	S.E.	32
	1-3/8	5/8	5	4	AA20-4	42550	D.E.	30
	1-5/8	5/8	3-3/4	4	A20-4	41538	S.E.	32
	2-1/2	5/8	4-5/8	4	AL20-4	41734	S.E.	33
	4	5/8	6-1/8	4	AE20-4	41832	S.E.	34
	1-1/8	5/8***	2-1/2	4	ASF20	41430	S.E.	36
	4 FLUTE NCC - *HS Steel Roughers - Coarse Pitch*							
	1-5/8	5/8	3-3/4	4	WR20-4	64012	S.E.	57
	2-1/2	5/8	4-5/8	4	WR20-4B	64014	S.E.	57

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
5/8	**4 FLUTE NCC - *PM Vanadium Roughers - Coarse Pitch***							
	1-5/8	5/8	3-3/4	4	WRT20-4	64806	S.E.	61
	2-1/2	5/8	4-5/8	4	WRT20-4B	64808	S.E.	61
	4 FLUTE NCC CREST-KUT - *HS Steel*							
	1-5/8	5/8	3-3/4	4	KA20-4	65812	S.E.	46
	2-1/2	5/8	4-5/8	4	KA20-4A	65814	S.E.	46
	4	5/8	6-1/8	4	KA20-4B	65816	S.E.	46
	4 FLUTE NCC CREST-KUT PREMIUM - *8% Cobalt*							
	1-5/8	5/8	3-3/4	4	KPA20-4	66312	S.E.	48
	2-1/2	5/8	4-5/8	4	KPA20-4A	66314	S.E.	48
	4	5/8	6-1/8	4	KPA20-4B	66316	S.E.	48
	4 FLUTE NCC - *8% Cobalt Roughers - Coarse Pitch*							
	1-5/8	5/8	3-3/4	4	WRC20-4	64450	S.E.	59
	2-1/2	5/8	4-5/8	4	WRC20-4B	64452	S.E.	59
	4 FLUTE NCC - *8% Cobalt Roughers - Fine Pitch*							
	1-5/8	5/8	3-3/4	4	WRCF20-4	64912	S.E.	62
	2-1/2	5/8	4-5/8	4	WRCF20-4B	64914	S.E.	62
	2 - 4 FLUTE BALL END - *HS Steel*							
	1-1/8	5/8	4-9/16	2	RR20-4	27244	D.E.	39
	1-3/8	1/2	3-3/8	2	R20-3	27046	S.E.	40
	1-3/8	5/8	3-1/2	2	R20-4	27048	S.E.	40
	1-3/8	5/8	4-5/8	2	RL20-4	27144	S.E.	40
	2-3/4" Below Shank							
	1-1/4	5/8	3-3/8	4	RK20-4	47140	S.E.	43
	1-3/4	5/8	3-7/8	4	RK20-4A	47142	S.E.	43
	2-1/2	5/8	4-5/8	4	RK20-4B	47144	S.E.	43
	3	5/8	5-1/8	4	RK20-4C	47146	S.E.	43
	3-3/4	5/8	5-7/8	4	RK20-4D	47148	S.E.	43
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	1-3/8	5/8	3-1/2	2	CoR20-4	27626	S.E.	39
	1-5/8	5/8	3-3/4	4	CoAR20-4	47552	S.E.	42
	4 FLT. BALL END CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	1-5/8	5/8	3-3/4	4	WRCR20-4	64706	S.E.	60
	2-1/2	5/8	4-5/8	4	WRCR20-4B	64708	S.E.	60
	4 FLT. BALL END CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	1-5/8	5/8	3-3/4	4	WRCRF20-4	64204	S.E.	63
11/16	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-5/16	1/2	3-5/16	2	B22-3	25312	S.E.	24
	1-5/16	5/8	3-7/16	2	B22-4	25314	S.E.	24
	1-5/16	3/4	5	2	BB22-5	26214	D.E.	22
	4 FLUTE CENTER CUTTING - *HS Steel*							
	1-5/8	5/8	3-3/4	4	AC22-4	42644	S.E.	37
	4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	1-5/8	1/2	3-5/8	4	A22-3	41540	S.E.	32
	1-5/8	5/8	3-3/4	4	A22-4	41542	S.E.	32
	1-5/8	3/4	5-5/8	4	AA22-5	42552	D.E.	30
3/4	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-5/16	1/2	3-5/16	2	B24-3	25316	S.E.	24
	1-5/16	5/8	3-7/16	2	B24-4	25318	S.E.	24
	1-5/16	3/4	5	2	BB24-5	26216	D.E.	22
	1-5/16	3/4	3-9/16	2	B24-5	25320	S.E.	24
	1-5/16	3/4	3-9/16	2	B24-5K *+.000 to -.0015*	25906	S.E.	27
	1-3/4	3/4	4	2	BMF24-5	25406	S.E.	25
	2-1/4	3/4	4-1/2	2	BLF24-5	25506	S.E.	25

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
3/4	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-5/8	3/4	5-3/8	2	BL24-5	25606	S.E.	26
	3-3/8" Below Shank							
	1-5/16	3/4	5	2	SBB24-5**	26408	D.E.	23
	1-5/16	3/4	3-9/16	2	SB24-5**	25706	S.E.	26
	1-1/8	3/4***	2-1/2	2	BSF24	25212	S.E.	26
	2 FLUTE CENTER CUTTING - *8% Cobalt*							
	1-5/16	3/4	3-9/16	2	CoB24-5	28232	S.E.	24
	2 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	1-5/8	3/4	3-7/8	2	KB24-5	65614	S.E.	45
	3	3/4	5-1/4	2	KB24-5A	65616	S.E.	45
	4	3/4	6-1/4	2	KB24-5B	65618	S.E.	45
	SKI-KUT MILLS FOR ALUMINUM - *HS Steel*							
	Roughing							
	1-5/8	3/4	3-7/8	2	SKB24-5	57070	S.E.	50
	3	3/4	5-1/4	2	SKB24-5B	57072	S.E.	50
	4	3/4	6-1/4	2	SKB24-5D	57074	S.E.	50
	Finishing							
	1-5/8	3/4	3-7/8	2	SKX24-5	57238	S.E.	50
	3	3/4	5-1/4	2	SKX24-5B	57240	S.E.	50
	4	3/4	6-1/4	2	SKX24-5D	57242	S.E.	50
	SKI-CARB MILLS FOR ALUMINUM - *Solid Carbide*							
	1-5/8	3/4	3-7/8	2	SKXC24-5	57460	S.E.	52
	3	3/4	5-1/4	2	SKXC24-5B	57462	S.E.	52
	4	3/4	6-1/4	2	SKXC24-5D	57464	S.E.	52
	3 FLUTE CENTER CUTTING - *HS Steel*							
	1-5/8	1/2	3-5/8	3	C24-3	31030	S.E.	28
	1-1/2	3/4	5-3/8	3	CC24-5	31228	D.E.	29
	1-5/8	5/8	3-3/4	3	C24-4	31032	S.E.	28
	1-5/8	3/4	3-7/8	3	C24-5	31034	S.E.	28
	3	3/4	5-1/4	3	CL24-5	31126	S.E.	29
	3 FLUTE CENTER CUTTING - *HS Steel Roughers - Coarse Pitch*							
	1-5/8	3/4	3-7/8	3	WRF24-5	64312	S.E.	58
	3	3/4	5-1/4	3	WRF24-5B	64314	S.E.	58
	3 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	1-5/8	3/4	3-7/8	3	KC24-5	65714	S.E.	45
	3	3/4	5-1/4	3	KC24-5A	65716	S.E.	45
	4	3/4	6-1/4	3	KC24-5B	65718	S.E.	45
	4 FLUTE CENTER CUTTING - *HS Steel*							
	1-5/8	3/4	5-5/8	4	AAC24-5	43044	D.E.	36
	1-5/8	3/4	3-7/8	4	AC24-5	42646	S.E.	37
	3	3/4	5-1/4	4	AC24-5A	42844	S.E.	38
	4	3/4	6-1/4	4	AC24-5B	42944	S.E.	38
	4 - 6 FLUTE CENTER CUTTING - *8% Cobalt*							
	1-5/8	3/4	3-7/8	4	CoAC24-5	44140	S.E.	31
	1-5/8	3/4	3-7/8	6	CoKC24-5	44544	S.E.	31
	2	3/4	4-1/4	4	CoAC24-5A	44244	S.E.	33
	2	3/4	4-1/4	6	CoKC24-5A	44640	S.E.	33
	3	3/4	5-1/4	4	CoAC24-5C	44320	S.E.	34
	3	3/4	5-1/4	6	CoKC24-5C	44740	S.E.	34
	4	3/4	6-1/4	4	CoAC24-5B	44420	S.E.	34
	4	3/4	6-1/4	6	CoKC24-5B	44840	S.E.	34
	4 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	1-5/8	3/4	3-7/8	4	WRCC24-5	64610	S.E.	60
	3	3/4	5-1/4	4	WRCC24-5B	69612	S.E.	60

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3/4 to 7/8 End Mills by Diameter

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
3/4	**4 FLUTE NCC - *8% Cobalt Roughers - Fine Pitch***							
	1-5/8	3/4	3-7/8	4	WRCF24-5	64916	S.E.	62
	3	3/4	5-1/4	4	WRCF24-5B	64918	S.E.	62
	4 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Fine Pitch*							
	1-5/8	3/4	3-7/8	4	WRCCF24-5	65010	S.E.	63
	3	3/4	5-1/4	4	WRCCF24-5B	65012	S.E.	63
	4 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Coarse Pitch*							
	3/4	3/4	2-7/8	4	WRCCS24-5	64124	S.E.	64
	4 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	3/4	3/4	2-7/8	4	WRCCFS24-5	64170	S.E.	64
	4 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	1-5/8	3/4	3-7/8	4	KAC24-5	66118	S.E.	47
	3	3/4	5-1/4	4	KAC24-5A	66120	S.E.	47
	4	3/4	6-1/4	4	KAC24-5B	66122	S.E.	47
	4 FLUTE CENTER CUTTING CREST-KUT - *8% Cobalt*							
	3	3/4	5-1/4	4	KPAC24-5A	66508	S.E.	49
	4 FLUTE NON-CENTER CUTTING - *HS Steel*							
	1-5/8	1/2	3-5/8	4	A24-3	41544	S.E.	32
	1-5/8	5/8	3-3/4	4	A24-4	41546	S.E.	32
	1-5/8	3/4	5-5/8	4	AA24-5	42554	D.E.	30
	1-5/8	3/4	3-7/8	4	A24-5	41548	S.E.	32
	3	3/4	5-1/4	4	AL24-5	41736	S.E.	33
	4	3/4	6-1/4	4	AE24-5	41834	S.E.	34
	1-1/4	3/4***	2-5/8	4	ASF24	41432	S.E.	36
	4 FLUTE NCC - *PM Vanadium Roughers - Coarse Pitch*							
	1-5/8	3/4	3-7/8	4	WRT24-5	64810	S.E.	61
	3	3/4	5-1/4	4	WRT24-5B	64812	S.E.	61
	4 FLUTE NCC CREST-KUT - *HS Steel*							
	1-5/8	3/4	3-7/8	4	KA24-5	65818	S.E.	46
	3	3/4	5-1/4	4	KA24-5A	65820	S.E.	46
	4	3/4	6-1/4	4	KA24-5B	65822	S.E.	46
	4 FLUTE NCC CREST-KUT PREMIUM - *8% Cobalt*							
	1-5/8	3/4	3-7/8	4	KPA24-5	66318	S.E.	48
	3	3/4	5-1/4	4	KPA24-5A	66320	S.E.	48
	4	3/4	6-1/4	4	KPA24-5B	66322	S.E.	48
	4 FLUTE NCC - *HS Steel Roughers - Coarse Pitch*							
	1-5/8	3/4	3-7/8	4	WR24-5	64016	S.E.	57
	3	3/4	5-1/4	4	WR24-5B	64018	S.E.	57
	4 FLUTE NCC - *8% Cobalt Roughers - Coarse Pitch*							
	1-5/8	3/4	3-7/8	4	WRC24-5	64460	S.E.	59
	3	3/4	5-1/4	4	WRC24-5B	64462	S.E.	59
	2 - 4 FLUTE BALL END - *HS Steel*							
	1-5/16	3/4	5	2	RR24-5	27246	D.E.	39
	1-5/8	1/2	3-5/8	2	R24-3	27050	S.E.	40
	1-5/8	3/4	3-7/8	2	R24-5	27052	S.E.	40
	1-5/8	3/4	5-3/8	2	RL24-5	27146	S.E.	40
	3-3/8" Below Shank							
	1-1/2	3/4	3-3/4	4	RK24-5	47150	S.E.	43
	2-1/4	3/4	4-1/2	4	RK24-5A	47152	S.E.	43
	3	3/4	5-1/4	4	RK24-5B	47154	S.E.	43
	3-3/4	3/4	6	4	RK24-5C	47156	S.E.	43
	4-1/2	3/4	6-3/4	4	RK24-5D	47158	S.E.	43

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
3/4	**2 - 4 FLUTE BALL END - *8% Cobalt***							
	1-5/8	3/4	3-7/8	2	CoR24-5	27628	S.E.	39
	1-5/8	3/4	3-7/8	4	CoAR24-5	47554	S.E.	42
	4 FLT. BALL END CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	1-5/8	3/4	3-7/8	4	WRCR24-5	64710	S.E.	60
	3	3/4	5-1/4	4	WRCR24-5B	64712	S.E.	60
	4 FLT. BALL END CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	1-5/8	3/4	3-7/8	4	WRCRF24-5	64206	S.E.	61
13/16	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-1/2	5/8	3-5/8	2	B26-4	25322	S.E.	24
	1-9/16	7/8	5-1/2	2	BB26-6	26218	D.E.	22
	2 FLUTE BALL END - *HS Steel*							
	2	3/4	4-1/4	2	R26-5	27054	S.E.	40
	4 - 6 FLUTE NON-CENTER CUTTING - *HS Steel*							
	1-7/8	5/8	4	6	A26-4	41930	S.E.	32
	1-7/8	7/8	6-1/8	4	AA26-6	42556	D.E.	30
7/8	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-1/2	5/8	3-5/8	2	B28-4	25324	S.E.	24
	1-1/2	3/4	3-3/4	2	B28-5	25326	S.E.	24
	1-1/2	7/8	3-3/4	2	B28-6	25328	S.E.	24
	1-1/2	7/8	3-3/4	2	B28-6K	25908	S.E.	27
					+.000 to -.0015			
	1-9/16	7/8	5-1/2	2	BB28-6	26220	D.E.	22
	2	7/8	4-1/4	2	BMF28-6	25408	S.E.	25
	2-1/2	7/8	4-3/4	2	BLF28-6	25508	S.E.	25
	2	7/8	6	2	BL28-6	25608	S.E.	26
	4" Below Shank							
	1-1/2	7/8	3-3/4	2	SB28-6**	25708	S.E.	26
	1-9/16	7/8	5-1/2	2	SBB28-6**	26410	D.E.	23
	2 FLUTE CENTER CUTTING - *8% Cobalt*							
	1-1/2	7/8	3-3/4	2	CoB28-6	28234	S.E.	24
	SKI-KUT MILLS FOR ALUMINUM - *HS Steel*							
	Roughing							
	1-7/8	7/8	4-1/8	2	SKB28-6	57080	S.E.	50
	3-1/2	7/8	5-3/4	2	SKB28-6B	57082	S.E.	50
	5	7/8	7-1/4	2	SKB28-6D	57084	S.E.	50
	Finishing							
	1-7/8	7/8	4-1/8	2	SKX28-6	57244	S.E.	50
	3-1/2	7/8	5-3/4	2	SKX28-6B	57246	S.E.	50
	5	7/8	7-1/4	2	SKX28-6D	57248	S.E.	50
	3 FLUTE CENTER CUTTING - *HS Steel*							
	1-3/4	7/8	5-7/8	3	CC28-6	31230	D.E.	29
	1-7/8	5/8	4	3	C28-4	31036	S.E.	28
	1-7/8	3/4	4-1/8	3	C28-5	31038	S.E.	28
	1-7/8	7/8	4-1/8	3	C28-6	31040	S.E.	28
	3-1/2	7/8	5-3/4	3	CL28-6	31128	S.E.	29
	3 FLUTE CTR. CUTTING - *HS Steel Rougher - Coarse Pitch*							
	1-7/8	3/4	4-1/8	3	WRF28-5	64316	S.E.	58
	4 FLUTE CENTER CUTTING - *HS Steel*							
	1-7/8	7/8	6-1/8	4	AAC28-6	43046	D.E.	36
	1-7/8	7/8	4-1/8	4	AC28-6	42648	S.E.	37
	3-1/2	7/8	5-3/4	4	AC28-6A	42846	S.E.	38
	5	7/8	7-1/4	4	AC28-6B	42946	S.E.	38

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
7/8	**4 FLUTE CENTER CUTTING - *8% Cobalt***							
	1-7/8	7/8	4-1/8	4	CoAC28-6	44142	S.E.	31
	3-1/2	7/8	5-3/4	4	CoAC28-6A	44322	S.E.	34
	5	7/8	7-1/4	4	CoAC28-6B	44422	S.E.	34
	4 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	1-7/8	7/8	4-1/8	4	KAC28-6	66124	S.E.	47
	3-1/2	7/8	5-3/4	4	KAC28-6A	66126	S.E.	47
	5	7/8	7-1/4	4	KAC28-6B	66128	S.E.	47
	5 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Coarse Pitch*							
	1-7/8	3/4	4-1/8	5	WRCC28-5	64614	S.E.	60
	5 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	1-7/8	3/4	4-1/8	5	WRCCF28-5	65014	S.E.	61
	4 - 6 FLUTES NON-CENTER CUTTING - *HS Steel*							
	1-7/8	5/8	4	6	A28-4	41932	S.E.	32
	1-7/8	3/4	4-1/8	4	A28-5	41550	S.E.	32
	1-7/8	7/8	6-1/8	4	AA28-6	42558	D.E.	30
	1-7/8	7/8	4-1/8	4	A28-6	41552	S.E.	32
	3-1/2	7/8	5-3/4	4	AL28-6	41738	S.E.	33
	5	7/8	7-1/4	4	AE28-6	41836	S.E.	34
	5 FLUTE NCC - *HS Steel Roughers - Coarse Pitch*							
	1-7/8	3/4	4-1/8	5	WR28-5	64020	S.E.	57, 58
	3-1/2	3/4	5-3/4	5	WR28-5B	64022	S.E.	57
	4 FLUTE NON-CENTER CUTTING CREST-KUT - *HS Steel*							
	1-7/8	3/4	4-1/8	4	KA28-5	65824	S.E.	46
	2 - 4 FLUTE BALL END - *HS Steel*							
	1-9/16	7/8	5-1/2	2	RR28-6	27248	D.E.	39
	2	3/4	4-1/4	2	R28-5	27056	S.E.	40
	2	7/8	4-1/4	2	R28-6	27058	S.E.	40
	2	7/8	6	2	RL28-6	27148	S.E.	40
	4" Below Shank							
	1-7/8	7/8	4-1/8	4	RK28-6A	47160	S.E.	43
	5 FLUTE NCC - *PM Vanadium Roughers - Coarse Pitch*							
	1-7/8	3/4	4-1/8	5	WRT28-5	64814	S.E.	61
	3-1/2	3/4	5-3/4	5	WRT28-5B	64816	S.E.	61
	5 FLUTE NCC - *8% Cobalt Roughers - Coarse Pitch*							
	1-7/8	3/4	4-1/8	5	WRC28-5	64470	S.E.	59, 60
	3-1/2	3/4	5-3/4	5	WRC28-5B	64472	S.E.	59
	5 FLUTE NCC - *8% Cobalt Roughers - Fine Pitch*							
	1-7/8	3/4	4-1/8	5	WRCF28-5	64920	S.E.	62
	3-1/2	3/4	5-3/4	5	WRCF28-5B	64922	S.E.	62
15/16	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-1/2	5/8	3-5/8	2	B30-4	25330	S.E.	24
	1-1/2	7/8	3-3/4	2	B30-6	25332	S.E.	24
	1-5/8	1	5-7/8	2	BB30-7	26222	D.E.	22
	2 FLUTE BALL END - *HS Steel*							
	2-1/4	3/4	4-1/2	2	R30-5	27060	S.E.	40
	4 - 6 FLUTE NON-CENTER CUTTING - *HS Steel*							
	1-7/8	5/8	4	6	A30-4	41934	S.E.	32
	1-7/8	7/8	4-1/8	4	A30-6	41554	S.E.	32
	1-7/8	1	6-3/8	4	AA30-7	42560	D.E.	30

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-1/2	5/8	3-5/8	2	B32-4	25334	S.E.	24
	1-1/2	3/4	3-3/4	2	B32-5	25336	S.E.	24
	1-1/2	7/8	3-3/4	2	B32-6	25338	S.E.	24
	1-5/8	1	5-7/8	2	BB32-7	26224	D.E.	22
	1-5/8	1	4-1/8	2	B32-7	25340	S.E.	24
	1-5/8	1	4-1/8	2	B32-7K	25910	S.E.	27
					+.000 to -.0015			
	2-1/4	1	4-3/4	2	BMF32-7	25410	S.E.	25
	3	1	5-1/2	2	BLF32-7	25510	S.E.	25
	2-1/2	1	7-1/4	2	BL32-7	25610	S.E.	26
	5" Below Shank							
	1-1/2	7/8	3-3/4	2	SB32-6**	25710	S.E.	26
	1-5/8	1	5-7/8	2	SBB32-7**	26412	D.E.	23
	2 FLUTE CENTER CUTTING - *8% Cobalt*							
	1-5/8	1	4-1/8	2	CoB32-7	28236	S.E.	24
	2 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	2	1	4-1/2	2	KB32-7	65620	S.E.	45
	4	1	6-1/2	2	KB32-7B	65622	S.E.	45
	6	1	8-1/2	2	KB32-7D	65624	S.E.	45
	SKI-KUT MILLS FOR ALUMINUM - *HS Steel*							
	Roughing							
	2	1	4-1/2	2	SKB32-7	57090	S.E.	50
	3	1	5-1/2	2	SKB32-7A	57092	S.E.	50
	4	1	6-1/2	2	SKB32-7B	57094	S.E.	50
	6	1	8-1/2	2	SKB32-7D	57096	S.E.	50
	Finishing							
	2	1	4-1/2	2	SKX32-7	57250	S.E.	50
	3	1	5-1/2	2	SKX32-7A	57252	S.E.	50
	4	1	6-1/2	2	SKX32-7B	57254	S.E.	50
	6	1	8-1/2	2	SKX32-7D	57256	S.E.	50
	SKI-CARB MILLS FOR ALUMINUM - *Solid Carbide*							
	2	1	4-1/2	2	SKXC32-7	57470	S.E.	52
	4	1	6-1/2	2	SKXC32-7B	57472	S.E.	52
	3 FLUTE CENTER CUTTING - *HS Steel*							
	1-3/4	1	6-1/8	3	CC32-7	31232	D.E.	29
	1-7/8	5/8	4	3	C32-4	31042	S.E.	28
	1-7/8	3/4	4-1/8	3	C32-5	31044	S.E.	28
	1-7/8	7/8	4-1/8	3	C32-6	31046	S.E.	28
	2	1	4-1/2	3	C32-7	31048	S.E.	28
	4	1	6-1/2	3	CL32-7	31130	S.E.	29
	3 FLUTE CTR. CUTTING - *HS Steel Roughers - Coarse Pitch*							
	2	1	4-1/2	3	WRF32-7	64318	S.E.	58
	3	1	5-1/2	3	WRF32-7A	64320	S.E.	58
	4	1	6-1/2	3	WRF32-7B	64322	S.E.	58
	3 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	2	1	4-1/2	3	KC32-7	65720	S.E.	45
	3	1	5-1/2	3	KC32-7C	65722	S.E.	45
	4	1	6-1/2	3	KC32-7A	65724	S.E.	45
	6	1	8-1/2	3	KC32-7B	65726	S.E.	45
	4 FLUTE CENTER CUTTING - *HS Steel*							
	1-7/8	1	6-3/8	4	AAC32-7	43048	D.E.	36
	2	1	4-1/2	4	AC32-7	42650	S.E.	37
	3	1	5-1/2	4	AC32-7C	42740	S.E.	37
	4	1	6-1/2	4	AC32-7A	42848	S.E.	38
	6	1	8-1/2	4	AC32-7B	42948	S.E.	38

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

1 to 1-1/8 End Mills by Diameter

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1	**4 - 6 FLUTE CTR. CUTTING - *8% Cobalt***							
	2	1	4-1/2	4	CoAC32-7	44144	S.E.	31
	2	1	4-1/2	6	CoKC32-7	44546	S.E.	31
	3	1	5-1/2	4	CoAC32-7C	44246	S.E.	33
	3	1	5-1/2	6	CoKC32-7C	44642	S.E.	33
	4	1	6-1/2	4	CoAC32-7A	44324	S.E.	34
	4	1	6-1/2	6	CoKC32-7A	44742	S.E.	34
	6	1	8-1/2	4	CoAC32-7B	44424	S.E.	34
	6	1	8-1/2	6	CoKC32-7B	44842	S.E.	34
	5 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	2	1	4-1/2	5	WRCC32-7	64616	S.E.	60
	3	1	5-1/2	5	WRCC32-7A	64618	S.E.	60
	4	1	6-1/2	5	WRCC32-7B	64620	S.E.	60
	5 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Fine Pitch*							
	2	1	4-1/2	5	WRCCF32-7	65016	S.E.	63
	3	1	5-1/2	5	WRCCF32-7A	65018	S.E.	63
	4	1	6-1/2	5	WRCCF32-7B	65020	S.E.	63
	5 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Coarse Pitch*							
	1	1	3-1/2	5	WRCCS32-7	64132	S.E.	64
	5 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	1	1	3-1/2	5	WRCCFS32-7	64172	S.E.	64
	4 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	2	1	4-1/2	4	KAC32-7	66130	S.E.	47
	3	1	5-1/2	4	KAC32-7C	66132	S.E.	47
	4	1	6-1/2	4	KAC32-7A	66134	S.E.	47
	6	1	8-1/2	4	KAC32-7B	66136	S.E.	47
	4 - 6 FLUTE CENTER CUTTING CREST-KUT - *8% Cobalt*							
	2	1	4-1/2	4	KPAC32-7	66510	S.E.	49
	4	1	6-1/2	4	KPAC32-7B	66512	S.E.	49
	2	1	4-1/2	6	KPSC32-7	66602	S.E.	49
	4	1	6-1/2	6	KPSC32-7B	66604	S.E.	49
	4 - 6 FLUTE NON-CENTER CUTTING - *HS Steel*							
	1-7/8	5/8	4	6	A32-4	41936	S.E.	32
	1-7/8	3/4	4-1/8	4	A32-5	41556	S.E.	32
	1-7/8	7/8	4-1/8	4	A32-6	41558	S.E.	32
	1-7/8	1	6-3/8	4	AA32-7	42562	D.E.	30
	2	1	4-1/2	4	A32-7	41560	S.E.	32
	3	1	5-1/2	4	AM32-7	41630	S.E.	33
	4	1	6-1/2	4	AL32-7	41740	S.E.	33
	6	1	8-1/2	4	AE32-7	41838	S.E.	34
	5 FLUTE NCC - *HS Steel Roughers - Coarse Pitch*							
	3/4	3/4	3	5	WR32-5	64024	S.E.	57, 58
	1-7/8	3/4	4-1/8	5	WR32-5A	64026	S.E.	57, 58
	4	3/4	6-1/4	5	WR32-5B	64028	S.E.	57, 58
	2	1	4-1/2	5	WR32-7	64030	S.E.	57
	3	1	5-1/2	5	WR32-7A	64032	S.E.	57
	4	1	6-1/2	5	WR32-7B	64034	S.E.	57
	4 FLUTE NCC CREST-KUT - *HS Steel*							
	1-7/8	3/4	4-1/8	4	KA32-5	65826	S.E.	46
	2	1	4-1/2	4	KAF32-7	65828	S.E.	46
	2	1	4-1/2	6	KA32-7	65902	S.E.	46
	3	1	5-1/2	6	KA32-7A	65904	S.E.	46
	4	1	6-1/2	4	KAF32-7B	65830	S.E.	46
	4	1	6-1/2	6	KA32-7B	65906	S.E.	46
	6	1	8-1/2	4	KAF32-7D	65832	S.E.	46
	6	1	8-1/2	6	KA32-7D	65908	S.E.	46

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1	**4 FLUTE NCC CREST-KUT PREMIUM - *8% Cobalt***							
	2	1	4-1/2	6	KPA32-7	66402	S.E.	48
	3	1	5-1/2	6	KPA32-7A	66404	S.E.	48
	4	1	6-1/2	6	KPA32-7B	66406	S.E.	48
	6	1	8-1/2	6	KPA32-7D	66408	S.E.	48
	5 FLUTE NCC - *PM Vanadium Roughers - Coarse Pitch*							
	2	1	4-1/2	5	WRT32-7	64818	S.E.	61
	4	1	6-1/2	5	WRT32-7B	64820	S.E.	61
	5 FLUTE NCC - *8% Cobalt Roughers - Coarse Pitch*							
	1-7/8	3/4	4-1/8	5	WRC32-5A	64480	S.E.	59, 60
	4	3/4	6-1/4	5	WRC32-5B	64482	S.E.	59, 60
	2	1	4-1/2	5	WRC32-7	64484	S.E.	59
	3	1	5-1/2	5	WRC32-7A	64486	S.E.	59
	4	1	6-1/2	5	WRC32-7B	64488	S.E.	59
	5 FLUTE NCC - *8% Cobalt Roughers - Fine Pitch*							
	2	1	4-1/2	5	WRCF32-7	64924	S.E.	62
	3	1	5-1/2	5	WRCF32-7A	64926	S.E.	62
	4	1	6-1/2	5	WRCF32-7B	64928	S.E.	62
	2 - 4 FLUTE BALL END - *HS Steel*							
	1-5/8	1	5-7/8	2	RR32-7	27250	D.E.	39
	2-1/4	3/4	4-1/2	2	R32-5	27062	S.E.	40
	2-1/4	1	4-3/4	2	R32-7	27064	S.E.	40
	2-1/2 *5" Below Shank*	1	7-1/4	2	RL32-7	27150	S.E.	40
	2	1	4-1/2	4	RK32-7	47162	S.E.	43
	3	1	5-1/2	4	RK32-7A	47164	S.E.	43
	4	1	6-1/2	4	RK32-7B	47166	S.E.	43
	5	1	7-1/2	4	RK32-7C	47168	S.E.	43
	6	1	8-1/2	4	RK32-7D	47170	S.E.	43
	2 - 4 FLUTE BALL END - *8% Cobalt*							
	2	1	4-1/2	4	CoAR32-7	47556	S.E.	42
	2-1/4	1	4-3/4	2	CoR32-7	27630	S.E.	39
	5 FLT. BALL END CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	2	1	4-1/2	5	WRCR32-7	64714	S.E.	60
	4	1	6-1/2	5	WRCR32-7B	64716	S.E.	60
	5 FLT. BALL END CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	2	1	4-1/2	5	WRCRF32-7	64208	S.E.	63
1-1/8	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-5/8	7/8	3-7/8	2	B36-6	25342	S.E.	24
	1-5/8	1	4-1/8	2	B36-7	25344	S.E.	24
	2-1/4	1	4-3/4	2	BMF36-7	25412	S.E.	25
	3	1	5-1/2	2	BLF36-7	25512	S.E.	25
	1-5/8	7/8	3-7/8	2	SB36-6**	25712	S.E.	26
	2 FLUTE BALL END - *HS Steel*							
	2-1/4	1	4-3/4	2	R36-7	27066	S.E.	40
	3 FLUTE CENTER CUTTING - *HS Steel*							
	2	1	4-1/2	3	C36-7	31050	S.E.	28
	4 FLUTE CENTER CUTTING - *HS Steel*							
	2	1	4-1/2	4	AC36-7	42652	S.E.	37
	6 FLUTE NON-CENTER CUTTING - *HS Steel*							
	2	7/8	4-1/4	6	A36-6	41938	S.E.	32
	2	1	4-1/2	6	A36-7	41940	S.E.	32
	4	1	6-1/2	6	AL36-7	42110	S.E.	33

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1-1/8	**6 FLUTE NCC - *HS Steel Rougher - Coarse Pitch***							
	2	1	4-1/2	6	WR36-7	64036	S.E.	57
	6 FLUTE NCC - *PM Vanadium Rougher - Coarse Pitch*							
	2	1	4-1/2	6	WRT36-7	64822	S.E.	61
	6 FLUTE NCC - *8% Cobalt Rougher - Coarse Pitch*							
	2	1	4-1/2	6	WRC36-7	64490	S.E.	59
	6 FLUTE NCC - *8% Cobalt Rougher - Fine Pitch*							
	2	1	4-1/2	6	WRCF36-7	64930	S.E.	62
1-1/4	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-5/8	7/8	3-7/8	2	B40-6	25346	S.E.	24
	1-5/8	1	4-1/8	2	B40-7	25348	S.E.	24
	1-5/8	1-1/4	4-1/8	2	B40-8	25350	S.E.	24
	1-5/8	1-1/4	4-1/8	2	B40-8K *+.000 to -.0015*	25912	S.E.	27
	2-1/4	1	4-3/4	2	BMF40-7	25414	S.E.	25
	2-1/4	1-1/4	4-3/4	2	BMF40-8	25416	S.E.	25
	3	1	5-1/2	2	BLF40-7	25514	S.E.	25
	3	1-1/4	5-1/2	2	BLF40-8	25516	S.E.	25
	3 *5" Below Shank*	1-1/4	7-1/4	2	BL40-8	25612	S.E	26
	.1-5/8	7/8	3-7/8	2	SB40-6**	25714	S.E.	26
	1-5/8	1-1/4	4-1/8	2	SB40-8**	25716	S.E.	26
	2 FLUTE CENTER CUTTING - *8% Cobalt*							
	1-5/8	1-1/4	4-1/8	2	CoB40-8	28238	S.E.	24
	2 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	2	1-1/4	4-1/2	2	KB40-8	65626	S.E.	45
	4	1-1/4	6-1/2	2	KB40-8B	65628	S.E.	45
	6	1-1/4	8-1/2	2	KB40-8D	65630	S.E.	45
	SKI-KUT MILLS FOR ALUMINUM - *HS Steel*							
	Roughing							
	2	1-1/4	4-1/2	2	SKB40-8	57110	S.E.	50
	3	1-1/4	5-1/2	2	SKB40-8A	57112	S.E.	50
	4	1-1/4	6-1/2	2	SKB40-8B	57114	S.E.	50
	6	1-1/4	8-1/2	2	SKB40-8D	57116	S.E.	50
	Finishing							
	2	1-1/4	4-1/2	2	SKX40-8	57258	S.E.	50
	3	1-1/4	5-1/2	2	SKX40-8A	57260	S.E.	50
	4	1-1/4	6-1/2	2	SKX40-8B	57262	S.E.	50
	6	1-1/4	8-1/2	2	SKX40-8D	57264	S.E.	50
	3 FLUTE CENTER CUTTING - *HS Steel*							
	2	1	4-1/2	3	C40-7	31052	S.E.	28
	2	1-1/4	4-1/2	3	C40-8	31054	S.E.	28
	4	1-1/4	6-1/2	3	CL40-8	31132	S.E.	29
	3 FLUTE CTR. CUTTING - *HS Steel Roughers - Coarse Pitch*							
	2	1-1/4	4-1/2	3	WRF40-8	64324	S.E.	58
	3	1-1/4	5-1/2	3	WRF40-8A	64326	S.E.	58
	4	1-1/4	6-1/2	3	WRF40-8B	64328	S.E.	58
	3 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	2	1-1/4	4-1/2	3	KC40-8	65728	S.E.	45
	3	1-1/4	5-1/2	3	KC40-8C	65730	S.E.	45
	4	1-1/4	6-1/2	3	KC40-8A	65732	S.E.	45
	6	1-1/4	8-1/2	3	KC40-8B	65734	S.E.	45
	4 FLUTE CENTER CUTTING - *HS Steel*							
	2	1-1/4	4-1/2	4	AC40-8	42654	S.E.	37
	3	1-1/4	5-1/2	4	AC40-8C	42742	S.E.	37
	4	1-1/4	6-1/2	4	AC40-8A	42850	S.E.	38
	6	1-1/4	8-1/2	4	AC40-8B	42950	S.E.	38

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1-1/4	**4 - 6 FLUTE CENTER CUTTING - *8% Cobalt***							
	2	1-1/4	4-1/2	4	CoAC40-8	44146	S.E.	31
	2	1-1/4	4-1/2	6	CoKC40-8	44548	S.E.	31
	3	1-1/4	5-1/2	4	CoAC40-8C	44248	S.E.	33
	3	1-1/4	5-1/2	6	CoKC40-8C	44644	S.E.	33
	4	1-1/4	6-1/2	4	CoAC40-8A	44326	S.E.	34
	4	1-1/4	6-1/2	6	CoKC40-8A	44744	S.E.	34
	6	1-1/4	8-1/2	4	CoAC40-8B	44426	S.E.	34
	6	1-1/4	8-1/2	6	CoKC40-8B	44844	S.E.	34
	6 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	2	1-1/4	4-1/2	6	WRCC40-8	64622	S.E.	60
	3	1-1/4	5-1/2	6	WRCC40-8A	64624	S.E.	60
	4	1-1/4	6-1/2	6	WRCC40-8B	64626	S.E.	60
	6 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Fine Pitch*							
	2	1-1/4	4-1/2	6	WRCCF40-8	65022	S.E.	63
	3	1-1/4	5-1/2	6	WRCCF40-8A	65024	S.E.	63
	4	1-1/4	6-1/2	6	WRCCF40-8B	65026	S.E.	63
	6 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Coarse Pitch*							
	1-1/4	1-1/4	3-3/4	6	WRCCS40-8	64140	S.E.	64
	6 FLUTE CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	1-1/4	1-1/4	3-3/4	6	WRCCFS40-8	64174	S.E.	64
	4 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	2	1-1/4	4-1/2	4	KAC40-8	66138	S.E.	47
	3	1-1/4	5-1/2	4	KAC40-8C	66140	S.E.	47
	4	1-1/4	6-1/2	4	KAC40-8A	66142	S.E.	47
	6	1-1/4	8-1/2	4	KAC40-8B	66144	S.E.	47
	6 FLUTE CENTER CUTTING CREST-KUT - *8% Cobalt*							
	2	1-1/4	4-1/2	6	KPSC40-8	66606	S.E.	49
	3	1-1/4	5-1/2	6	KPSC40-8A	66608	S.E.	49
	4	1-1/4	6-1/2	6	KPSC40-8B	66610	S.E.	49
	6	1-1/4	8-1/2	6	KPSC40-8D	66612	S.E.	49
	4 - 6 FLUTE NON-CENTER CUTTING - *HS Steel*							
	2	7/8	4-1/4	6	A40-6	41942	S.E.	32
	2	1	4-1/2	6	A40-7	41944	S.E.	32
	2	1-1/4	4-1/2	4	A40-8A	41562	S.E.	32
	2	1-1/4	4-1/2	6	A40-8	41946	S.E.	32
	3	1-1/4	5-1/2	4	AM40-8	41632	S.E.	33
	4	1	6-1/2	6	AL40-7	42112	S.E.	33
	4	1-1/4	6-1/2	4	AL40-8A	41742	S.E.	33
	4	1-1/4	6-1/2	6	AL40-8	42114	S.E.	33
	6	1-1/4	8-1/2	6	AE40-8	42210	S.E.	34
	6 FLUTE NCC - *HS Steel Roughers - Coarse Pitch*							
	2	3/4	4-1/4	6	WR40-5	64038	S.E.	57, 58
	4	3/4	6-1/4	6	WR40-5B	64040	S.E.	57, 58
	2	1-1/4	4-1/2	6	WR40-8	64042	S.E.	57
	3	1-1/4	5-1/2	6	WR40-8A	64044	S.E.	57
	4	1-1/4	6-1/2	6	WR40-8B	64046	S.E.	57
	4 - 6 FLUTE NCC CREST-KUT - *HS Steel*							
	2	3/4	4-1/4	6	KA40-5	65910	S.E.	46
	2	1-1/4	4-1/2	4	KAF40-8	65834	S.E.	46
	2	1-1/4	4-1/2	6	KA40-8	65912	S.E.	46
	3	1-1/4	5-1/2	6	KA40-8A	65914	S.E.	46
	4	1-1/4	6-1/2	4	KAF40-8B	65836	S.E.	46
	4	1-1/4	6-1/2	6	KA40-8B	65916	S.E.	46
	6	1-1/4	8-1/2	4	KAF40-8D	65838	S.E.	46
	6	1-1/4	8-1/2	6	KA40-8D	65918	S.E.	46

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

1-1/4 to 1-1/2 **End Mills by Diameter**

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1-1/4	**6 FLUTE NCC CREST-KUT PREMIUM - *8% Cobalt***							
	2	1-1/4	4-1/2	6	KPA40-8	66410	S.E.	48
	3	1-1/4	5-1/2	6	KPA40-8A	66412	S.E.	48
	4	1-1/4	6-1/2	6	KPA40-8B	66414	S.E.	48
	6	1-1/4	8-1/2	6	KPA40-8D	66416	S.E.	48
	6 FLUTE NCC - *PM Vanadium Roughers - Coarse Pitch*							
	2	1-1/4	4-1/2	6	WRT40-8	64824	S.E.	61
	4	1-1/4	6-1/2	6	WRT40-8B	64826	S.E.	61
	6 FLUTE NCC - *8% Cobalt Roughers - Coarse Pitch*							
	2	3/4	4-1/4	6	WRC40-5	64500	S.E.	59, 60
	4	3/4	6-1/4	6	WRC40-5B	64502	S.E.	59, 60
	2	1-1/4	4-1/2	6	WRC40-8	64504	S.E.	59
	3	1-1/4	5-1/2	6	WRC40-8A	64506	S.E.	59
	4	1-1/4	6-1/2	6	WRC40-8B	64508	S.E.	59
	6 FLUTE NCC - *8% Cobalt Roughers - Fine Pitch*							
	2	1-1/4	4-1/2	6	WRCF40-8	64932	S.E.	62
	3	1-1/4	5-1/2	6	WRCF40-8A	64934	S.E.	62
	4	1-1/4	6-1/2	6	WRCF40-8B	64936	S.E.	62
	2 - 4 - 6 FLUTE BALL END - *HS Steel*							
	2-1/2	1-1/4	5	2	R40-8	27068	S.E.	40
	3	1-1/4	7-1/4	2	RL40-8	27152	S.E.	40
	5" Below Shank							
	2	1-1/4	4-1/2	4	RK40-8	47172	S.E.	43
	3	1-1/4	5-1/2	4	RK40-8A	47174	S.E.	43
	4	1-1/4	6-1/2	4	RKX40-8A	47176	S.E.	43
	4-1/2	1-1/4	7	4	RKA40-8B	47178	S.E.	43
	4-1/2	1-1/4	7	6	RK40-8B	47240	S.E.	43
	6	1-1/4	8-1/2	4	RKA40-8C	47180	S.E.	43
	6	1-1/4	8-1/2	6	RK40-8C	47242	S.E.	43
	2 FLUTE BALL END - *8% Cobalt*							
	2-1/2	1-1/4	5	2	CoR40-8	27632	S.E.	39
	6 FLT. BALL END CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	2	1-1/4	4-1/2	6	WRCR40-8	64718	S.E.	60
	4	1-1/4	6-1/2	6	WRCR40-8B	64720	S.E.	60
	6 FLT. BALL END CTR. CUTTING - *8% Cobalt Rougher - Fine Pitch*							
	2	1-1/4	4-1/2	6	WRCRF40-8	64210	S.E.	63
1-3/8	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-5/8	1	4-1/8	2	B44-7	25352	S.E.	24
	2-1/4	1	4-3/4	2	BMF44-7	25418	S.E.	25
	3	1	5-1/2	2	BLF44-7	25518	S.E.	25
	2 FLUTE BALL END - *HS Steel*							
	2-1/2	1-1/4	5	2	R44-8	27070	S.E.	40
	6 FLUTE NON-CENTER CUTTING - *HS Steel*							
	2	1	4-1/2	6	A44-7	41948	S.E.	32
	4	1	6-1/2	6	AL44-7	42116	S.E.	33
1-1/2	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-5/8	1	4-1/8	2	B48-7	25354	S.E.	24
	1-5/8	1-1/4	4-1/8	2	B48-8	25356	S.E.	24
	1-5/8	1-1/4	4-1/8	2	B48-8K *+.000 to -.0015*	25914	S.E.	27
	2-1/4	1-1/4	4-3/4	2	BMF48-8	25420	S.E.	25
	3	1-1/4	5-1/2	2	BLF48-8	25520	S.E.	25
	1-5/8	1-1/4	4-1/8	2	SB48-8**	25718	S.E.	26
	2 FLUTE CENTER CUTTING - *8% Cobalt*							
	1-5/8	1-1/4	4-1/8	2	CoB48-8	28240	S.E.	24

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1-1/2	**2 FLUTE CENTER CUTTING CREST-KUT - *HS Steel***							
	2	1-1/4	4-1/2	2	KB48-8	65632	S.E.	45
	4	1-1/4	6-1/2	2	KB48-8B	65634	S.E.	45
	6	1-1/4	8-1/2	2	KB48-8D	65636	S.E.	45
	SKI-KUT MILLS FOR ALUMINUM - *HS Steel*							
	Roughing							
	2	1-1/4	4-1/2	2	SKB48-8	57120	S.E.	50
	3	1-1/4	5-1/2	2	SKB48-8A	57122	S.E.	50
	4	1-1/4	6-1/2	2	SKB48-8B	57124	S.E.	50
	6	1-1/4	8-1/2	2	SKB48-8D	57126	S.E.	50
	Finishing							
	2	1-1/4	4-1/2	2	SKX48-8	57266	S.E.	50
	3	1-1/4	5-1/2	2	SKX48-8A	57268	S.E.	50
	4	1-1/4	6-1/2	2	SKX48-8B	57270	S.E.	50
	6	1-1/4	8-1/2	2	SKX48-8D	57272	S.E.	50
	3 FLUTE CENTER CUTTING - *HS Steel*							
	2	1	4-1/2	3	C48-7	31056	S.E.	28
	2	1-1/4	4-1/2	3	C48-8	31058	S.E.	28
	4	1-1/4	6-1/2	3	CL48-8	31134	S.E.	29
	3 FLUTE CTR. CUTTING - *HS Steel Roughers - Coarse Pitch*							
	2	1-1/4	4-1/2	3	WRF48-8	64330	S.E.	58
	3	1-1/4	5-1/2	3	WRF48-8A	64332	S.E.	58
	4	1-1/4	6-1/2	3	WRF48-8B	64334	S.E.	58
	3 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	2	1-1/4	4-1/2	3	KC48-8	65736	S.E.	45
	3	1-1/4	5-1/2	3	KC48-8C	65738	S.E.	45
	4	1-1/4	6-1/2	3	KC48-8A	65742	S.E.	45
	6	1-1/4	8-1/2	3	KC48-8B	65744	S.E.	45
	3	1-1/2	5-7/8	3	KC48-9C	65740	S.E.	45
	4 FLUTE CENTER CUTTING - *HS Steel*							
	2	1-1/4	4-1/2	4	AC48-8	42656	S.E.	37
	4	1-1/4	6-1/2	4	AC48-8A	42852	S.E.	38
	8	1-1/4	10-1/2	4	AC48-8B	42952	S.E.	38
	4 - 6 FLUTE CENTER CUTTING - *8% Cobalt*							
	2	1-1/4	4-1/2	4	CoAC48-8	44148	S.E.	31
	2	1-1/4	4-1/2	6	CoKC48-8	44550	S.E.	31
	3	1-1/4	5-1/2	4	CoAC48-8C	44250	S.E.	33
	3	1-1/4	5-1/2	6	CoKC48-8C	44646	S.E.	33
	4	1-1/4	6-1/2	4	CoAC48-8A	44328	S.E.	34
	4	1-1/4	6-1/2	6	CoKC48-8A	44746	S.E.	34
	6	1-1/4	8-1/2	4	CoAC48-8B	44428	S.E.	34
	6	1-1/4	8-1/2	6	CoKC48-8B	44846	S.E.	34
	6 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	2	1-1/4	4-1/2	6	WRCC48-8	64628	S.E.	60
	3	1-1/4	5-1/2	6	WRCC48-8A	64630	S.E.	60
	4	1-1/4	6-1/2	6	WRCC48-8B	64632	S.E.	60
	6 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Fine Pitch*							
	2	1-1/4	4-1/2	6	WRCCF48-8	65028	S.E.	63
	3	1-1/4	5-1/2	6	WRCCF48-8A	65030	S.E.	63
	4	1-1/4	6-1/2	6	WRCCF48-8B	65032	S.E.	63
	4 FLUTE CENTER CUTTING CREST-KUT - *HS Steel*							
	2	1-1/4	4-1/2	4	KAC48-8	66146	S.E.	47
	4	1-1/4	6-1/2	4	KAC48-8A	66148	S.E.	47
	6	1-1/4	8-1/2	4	KAC48-8B	66150	S.E.	47
	4 - 6 FLUTE CENTER CUTTING CREST-KUT - *8% Cobalt*							
	4	1-1/4	6-1/2	4	KPAC48-8B	66514	S.E.	49
	4	1-1/4	6-1/2	6	KPSC48-8B	66614	S.E.	49

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Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1-1/2	**4 - 6 FLUTE NON-CENTER CUTTING - *HS Steel***							
	2	1	4-1/2	6	A48-7	41950	S.E.	32
	2	1-1/4	4-1/2	4	A48-8A	41564	S.E.	32
	2	1-1/4	4-1/2	6	A48-8	41952	S.E.	32
	3	1-1/4	5-1/2	4	AM48-8	41634	S.E.	33
	4	1	6-1/2	6	AL48-7	42118	S.E.	33
	4	1-1/4	6-1/2	4	AL48-8A	41744	S.E.	33
	4	1-1/4	6-1/2	6	AL48-8	42120	S.E.	33
	6	1-1/4	8-1/2	6	ALX48-8	42122	S.E.	33
	8	1-1/4	10-1/2	6	AE48-8	42212	S.E.	34
	6 FLUTE NCC - *HS Steel Roughers - Coarse Pitch*							
	3/4	3/4	3	6	WR48-5	64048	S.E.	57, 58
	2-1/4	3/4	4-1/2	6	WR48-5A	64050	S.E.	57, 58
	4	3/4	6-1/4	6	WR48-5B	64052	S.E.	57, 58
	2	1-1/4	4-1/2	6	WR48-8	64054	S.E.	57
	3	1-1/4	5-1/2	6	WR48-8A	64056	S.E.	57
	4	1-1/4	6-1/2	6	WR48-8B	64058	S.E.	57
	6	1-1/4	8-1/2	6	WR48-8C	64060	S.E.	57
	4 - 6 FLUTE NCC CREST-KUT - *HS Steel*							
	2	3/4	4-1/4	6	KA48-5	65920	S.E.	46
	2	1-1/4	4-1/2	4	KAF48-8	65840	S.E.	46
	2	1-1/4	4-1/2	6	KA48-8	65922	S.E.	46
	3	1-1/4	5-1/2	6	KA48-8A	65924	S.E.	46
	4	1-1/4	6-1/2	4	KAF48-8B	65842	S.E.	46
	4	1-1/4	6-1/2	6	KA48-8B	65926	S.E.	46
	6	1-1/4	8-1/2	4	KAF48-8D	65844	S.E.	46
	6	1-1/4	8-1/2	6	KA48-8D	65928	S.E.	46
	6 FLUTE NCC CREST-KUT PREMIUM - *8% Cobalt*							
	2	1-1/4	4-1/2	6	KPA48-8	66418	S.E.	48
	3	1-1/4	5-1/2	6	KPA48-8A	66420	S.E.	48
	4	1-1/4	6-1/2	6	KPA48-8B	66422	S.E.	48
	6	1-1/4	8-1/2	6	KPA48-8D	66424	S.E.	48
	6 FLUTE NCC - *PM Vanadium Roughers - Coarse Pitch*							
	2	1-1/4	4-1/2	6	WRT48-8	64828	S.E.	61
	4	1-1/4	6-1/2	6	WRT48-8B	64830	S.E.	61
	6 FLUTE NCC - *8% Cobalt Roughers - Coarse Pitch*							
	2-1/4	3/4	4-1/2	6	WRC48-5A	64510	S.E.	59, 60
	4	3/4	6-1/4	6	WRC48-5B	64512	S.E.	59, 60
	2	1-1/4	4-1/2	6	WRC48-8	64514	S.E.	59
	3	1-1/4	5-1/2	6	WRC48-8A	64516	S.E.	59
	4	1-1/4	6-1/2	6	WRC48-8B	64518	S.E.	59
	6	1-1/4	8-1/2	6	WRC48-8C	64520	S.E.	59
	6 FLUTE NCC - *8% Cobalt Roughers - Fine Pitch*							
	2	1-1/4	4-1/2	6	WRCF48-8	64938	S.E.	62
	3	1-1/4	5-1/2	6	WRCF48-8A	64940	S.E.	62
	4	1-1/4	6-1/2	6	WRCF48-8B	64942	S.E.	62
	6	1-1/4	8-1/2	6	WRCF48-8C	64944	S.E.	62
	2 - 4 - 6 FLUTE BALL END - *HS Steel*							
	4	1-1/4	6-1/2	6	RK48-8A	47246	S.E.	43
	6	1-1/4	8-1/2	4	RKA48-8B	47186	S.E.	43
	6	1-1/4	8-1/2	6	RK48-8B	47248	S.E.	43
	2	1-1/4	4-1/2	4	RKA48-8	47182	S.E.	43
	2	1-1/4	4-1/2	6	RK48-8	47244	S.E.	43
	2-1/2	1-1/4	5	2	R48-8	27072	S.E.	40
	4	1-1/4	6-1/2	4	RKA48-8A	47184	S.E.	43
	6 FLT. BALL END CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	2	1-1/4	4-1/2	6	WRCR48-8	64722	S.E.	60
	4	1-1/4	6-1/2	6	WRCR48-8B	64724	S.E.	60

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
1-1/2	**6 FLT. BALL END CTR. CUTTING - *8% Cobalt Roughers - Fine Pitch***							
	2	1-1/4	4-1/2	6	WRCRF48-8	64212	S.E.	63
1-5/8	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-5/8	1-1/4	4-1/8	2	B52-8	25358	S.E.	24
	2-1/4	1-1/4	4-3/4	2	BMF52-8	25422	S.E.	25
	3	1-1/4	5-1/2	2	BLF52-8	25522	S.E.	25
	6 FLUTE NON-CENTER CUTTING - *HS Steel*							
	2	1-1/4	4-1/2	6	A52-8	41954	S.E.	32
1-3/4	**2 FLUTE CENTER CUTTING - *HS Steel***							
	1-5/8	1-1/4	4-1/8	2	B56-8	25360	S.E.	24
	2-1/4	1-1/4	4-3/4	2	BMF56-8	25424	S.E.	25
	3	1-1/4	5-1/2	2	BLF56-8	25524	S.E.	25
	SKI-KUT MILLS FOR ALUMINUM - *HS Steel*							
	Roughing							
	2	1-1/4	4-1/2	2	SKB56-8	57130	S.E.	50
	4	1-1/4	6-1/2	2	SKB56-8B	57132	S.E.	50
	Finishing							
	2	1-1/4	4-1/2	2	SKX56-8	57274	S.E.	50
	4	1-1/4	6-1/2	2	SKX56-8B	57276	S.E.	50
	3 FLUTE CENTER CUTTING - *HS Steel*							
	2	1-1/4	4-1/2	3	C56-8	31060	S.E.	28
	4	1-1/4	6-1/2	3	CL56-8	31136	S.E.	29
	4 FLUTE CENTER CUTTING - *HS Steel*							
	2	1-1/4	4-1/2	4	AC56-8	42658	S.E.	37
	4	1-1/4	6-1/2	4	AC56-8A	42854	S.E.	38
	6 FLUTE NON-CENTER CUTTING - *HS Steel*							
	2	1-1/4	4-1/2	6	A56-8	41956	S.E.	32
	3	1-1/4	5-1/2	6	AM56-8	42030	S.E.	33
	4	1-1/4	6-1/2	6	AL56-8	42124	S.E.	33
	6 FLUTE NCC - *HS Steel Roughers - Coarse Pitch*							
	2-1/2	1-1/4	5	6	WR56-8	64062	S.E.	57
	4-1/2	1-1/4	7	6	WR56-8A	64064	S.E.	57
	6 FLUTE NCC - *PM Vanadium Roughers - Coarse Pitch*							
	2-1/2	1-1/4	5	6	WRT56-8	64832	S.E.	61
	4-1/2	1-1/4	7	6	WRT56-8A	64834	S.E.	61
	6 FLUTE NCC - *8% Cobalt Roughers - Coarse Pitch*							
	2-1/2	1-1/4	5	6	WRC56-8	64530	S.E.	59
	4-1/2	1-1/4	7	6	WRC56-8A	64532	S.E.	59
	6 FLUTE NCC - *8% Cobalt Roughers - Fine Pitch*							
	2-1/2	1-1/4	5	6	WRCF56-8	64946	S.E.	62
	4-1/2	1-1/4	7	6	WRCF56-8A	64948	S.E.	62
1-7/8	**2 FLUTE CENTER CUTING - *HS Steel***							
	1-5/8	1-1/4	4-1/8	2	B60-8	25362	S.E.	24
	2-1/4	1-1/4	4-3/4	2	BMF60-8	25426	S.E.	25
	3	1-1/4	5-1/2	2	BLF60-8	25526	S.E.	25
	6 FLUTE NON-CENTER CUTTING - *HS Steel*							
	2	1-1/4	4-1/2	6	A60-8	41958	S.E.	32
2	**2 FLUTE CENTER CUTTING - *HS Steel - Weldon Shank***							
	1-5/8	1-1/4	4-1/8	2	B64-8	25364	S.E.	24
	2-1/4	1-1/4	4-3/4	2	BMF64-8	25428	S.E.	25
	3	1-1/4	5-1/2	2	BLF64-8	25528	S.E.	25

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Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
2	***Combination Shank***							
	2	2	5-3/4	2	B64-11B	25366	S.E.	24
	3	2	6-3/4	2	B64-11A	25368	S.E.	24
	4	2	7-3/4	2	B64-11	25370	S.E.	24
	6	2	9-3/4	2	B64-11D	25372	S.E.	24
	2 FLUTE CENTER CUTTING - *8% Cobalt - Weldon Shank*							
	1-5/8	1-1/4	4-1/8	2	CoB64-8	28242	S.E.	24
	2 FLT. CTR. CUTTING CREST-KUT - *Combination Shank HS Steel*							
	4	2	7-3/4	2	KB64-11B	65638	S.E.	45
	6	2	9-3/4	2	KB64-11C	65640	S.E.	45
	8	2	11-3/4	2	KB64-11D	65642	S.E.	45
	SKI-KUT MILLS FOR ALUMINUM - *HS Steel - Weldon Shank*							
	Roughing							
	2	1-1/4	4-1/2	2	SKB64-8	57140	S.E.	50
	4	1-1/4	6-1/2	2	SKB64-8B	57142	S.E.	50
	Finishing							
	2	1-1/4	4-1/2	2	SKX64-8	57278	S.E.	50
	4	1-1/4	6-1/2	2	SKX64-8B	57280	S.E.	50
	3 FLUTE CENTER CUTTING - *HS Steel - Weldon Shank*							
	2	1-1/4	4-1/2	3	C64-8	31062	S.E.	28
	4	1-1/4	6-1/2	3	CL64-8	31138	S.E.	29
	Combination Shank							
	2	2	5-3/4	3	C64-11B	31064	S.E.	28
	3	2	6-3/4	3	C64-11A	31066	S.E.	28
	4	2	7-3/4	3	C64-11	31068	S.E.	28
	6	2	9-3/4	3	CL64-11	31140	S.E.	29
	3 FLUTE CTR. CUTTING - *HS Steel Roughers - Coarse Pitch*							
	Combination Shank							
	2	2	5-3/4	3	WRF64-11	64336	S.E.	58
	3	2	6-3/4	3	WRF64-11A	64338	S.E.	58
	4	2	7-3/4	3	WRF64-11B	64340	S.E.	58
	6	2	9-3/4	3	WRF64-11D	64342	S.E.	58
	8	2	11-3/4	3	WRF64-11F	64344	S.E.	58
	3 FLT. CTR. CUTTING CREST-KUT - *Combination Shank HS Steel*							
	3	2	6-3/4	3	KC64-11A	65746	S.E.	45
	4	2	7-3/4	3	KC64-11B	65748	S.E.	45
	6	2	9-3/4	3	KC64-11C	65750	S.E.	45
	8	2	11-3/4	3	KC64-11D	65752	S.E.	45
	4 FLUTE CENTER CUTTING - *HS Steel - Weldon Shank*							
	2	1-1/4	4-1/2	4	AC64-8	42660	S.E.	37
	4	1-1/4	6-1/2	4	AC64-8A	42856	S.E.	38
	Combination Shank							
	3	2	6-3/4	4	AC64-11A	42744	S.E.	37
	4 - 6 FLUTE CENTER CUTTING - *8% Cobalt - Weldon Shank*							
	4	1-1/4	6-1/2	4	CoAC64-8A	44330	S.E.	34
	4	1-1/4	6-1/2	6	CoKC64-8A	44748	S.E.	34
	2	2	5-3/4	6	CoKC64-10D	44552	S.E.	35
	3	2	6-3/4	6	CoKC64-10C	44648	S.E.	35
	4	2	7-3/4	6	CoKC64-10	44750	S.E.	35
	6	2	9-3/4	6	CoKC64-10A	44848	S.E.	35
	8 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Coarse Pitch*							
	Combination Shank							
	2	2	5-3/4	8	WRCC64-11	64634	S.E.	60
	3	2	6-3/4	8	WRCC64-11A	64636	S.E.	60
	4	2	7-3/4	8	WRCC64-11B	64638	S.E.	60
	6	2	9-3/4	8	WRCC64-11D	64640	S.E.	60

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
2	**8 FLUTE CTR. CUTTING - *8% Cobalt Roughers - Fine Pitch***							
	Combination Shank							
	2	2	5-3/4	8	WRCCF64-11	65034	S.E.	63
	3	2	6-3/4	8	WRCCF64-11A	65036	S.E.	63
	4	2	7-3/4	8	WRCCF64-11B	65038	S.E.	63
	6	2	9-3/4	8	WRCCF64-11D	65040	S.E.	63
	4 - 6 FLT. CTR. CUTTING CREST-KUT - *HS Steel - Comb. Shank*							
	3	2	6-3/4	4	KAC64-11A	66152	S.E.	47
	4	2	7-3/4	4	KAC64-11B	66154	S.E.	47
	6	2	9-3/4	4	KAC64-11C	66156	S.E.	47
	8	2	11-3/4	4	KAC64-11D	66158	S.E.	47
	3	2	6-3/4	6	KSC64-11A	66160	S.E.	47
	4	2	7-3/4	6	KSC64-11B	66162	S.E.	47
	5	2	8-3/4	6	KSC64-11E	66164	S.E.	47
	6	2	9-3/4	6	KSC64-11C	66166	S.E.	47
	6 - 8 FLUTE CENTER CUTTING - *8% Cobalt*							
	Crest-Kut - 8% Cobalt - Weldon Shank							
	4	2	7-3/4	6	KPSC64-10B	66616	S.E.	49
	6	2	9-3/4	6	KPSC64-10C	66618	S.E.	49
	4	2	7-3/4	8	KPEC64-10B	66620	S.E.	49
	6	2	9-3/4	8	KPEC64-10C	66622	S.E.	49
	6 - 8 FLUTE NCC - *HS Steel - Weldon Shank*							
	2	1-1/4	4-1/2	6	A64-8	41960	S.E.	32
	2	1-1/4	4-1/2	8	A64-8A	42340	S.E.	32
	3	1-1/4	5-1/2	6	AM64-8	42032	S.E.	33
	4	1-1/4	6-1/2	6	AL64-8	42126	S.E.	33
	4	1-1/4	6-1/2	8	AL64-8A	42342	S.E.	33
	8 FLT. NCC - *HS Steel Roughers - Coarse Pitch - Weldon Shank*							
	2	1-1/4	4-1/2	8	WR64-8	64066	S.E.	57
	4	1-1/4	6-1/2	8	WR64-8A	64068	S.E.	57
	4 - 6 FLUTE NON-CENTER CUTTING - *HS Steel*							
	Combination Shank							
	2	2	5-3/4	4	A64-11D	41566	S.E.	32
	2	2	5-3/4	6	A64-11E	41962	S.E.	32
	4	2	7-3/4	4	A64-11	41568	S.E.	32
	4	2	7-3/4	6	A64-11A	41964	S.E.	32
	6	2	9-3/4	4	AL64-11A	41746	S.E.	33
	6	2	9-3/4	6	AL64-11	42128	S.E.	33
	8	2	11-3/4	6	AE64-11	42214	S.E.	34
	10	2	13-3/4	6	AEX64-11	42216	S.E.	34
	8 FLUTE NCC - *HS Steel Roughers - Coarse Pitch*							
	Combination Shank							
	3	2	6-3/4	8	WR64-11A	64070	S.E.	57
	4	2	7-3/4	8	WR64-11B	64072	S.E.	57
	5	2	8-3/4	8	WR64-11C	64074	S.E.	57
	6	2	9-3/4	8	WR64-11D	64076	S.E.	57
	7	2	10-3/4	8	WR64-11E	64078	S.E.	57
	8	2	11-3/4	8	WR64-11F	64080	S.E.	57
	4 - 6 - 8 FLT. NCC CREST-KUT - *HS Steel - Weldon Shank*							
	2	1-1/4	4-1/2	6	KAS64-8	65930	S.E.	46
	2	1-1/4	4-1/2	8	KA64-8	66002	S.E.	46
	4	1-1/4	6-1/2	6	KAS64-8B	65932	S.E.	46
	4	1-1/4	6-1/2	8	KA64-8B	66004	S.E.	46

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Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
2	***Combination Shank***							
	4	2	7-3/4	4	KAF64-11B	65846	S.E.	46
	4	2	7-3/4	6	KAS64-11B	65934	S.E.	46
	4	2	7-3/4	8	KA64-11B	66006	S.E.	46
	5	2	8-3/4	6	KAS64-11E	65936	S.E.	46
	5	2	8-3/4	8	KA64-11E	66008	S.E.	46
	6	2	9-3/4	4	KAF64-11C	65848	S.E.	46
	6	2	9-3/4	6	KAS64-11C	65938	S.E.	46
	6	2	9-3/4	8	KA64-11C	66010	S.E.	46
	8	2	11-3/4	4	KAF64-11D	65850	S.E.	46
	8	2	11-3/4	6	KAS64-11D	65940	S.E.	46
	8	2	11-3/4	8	KA64-11D	66012	S.E.	46
	8 FLT. NCC CREST-KUT PREMIUM - *8% Cobalt - Weldon Shank*							
	2	1-1/4	4-1/2	8	KPA64-8	66426	S.E.	48
	4	1-1/4	6-1/2	8	KPA64-8B	66428	S.E.	48
	Combination Shank							
	4	2	7-3/4	8	KPA64-11B	66430	S.E.	48
	5	2	8-3/4	8	KPA64-11E	66432	S.E.	48
	6	2	9-3/4	8	KPA64-11C	66434	S.E.	48
	8	2	11-3/4	8	KPA64-11D	66436	S.E.	48
	8 FLT. NCC - *PM Vanadium Roughers - Crs. Pitch - Weldon Shank*							
	2	1-1/4	4-1/2	8	WRT64-8	64836	S.E.	60
	4	1-1/4	6-1/2	8	WRT64-8A	64838	S.E.	60
	Combination Shank							
	3	2	6-3/4	8	WRT64-11A	64840	S.E.	61
	4	2	7-3/4	8	WRT64-11B	64842	S.E.	61
	5	2	8-3/4	8	WRT64-11C	64844	S.E.	61
	6	2	9-3/4	8	WRT64-11D	64846	S.E.	61
	7	2	10-3/4	8	WRT64-11E	64848	S.E.	61
	8	2	11-3/4	8	WRT64-11F	64850	S.E.	61
	8 FLT. NCC - *8% Cobalt Roughers - Coarse Pitch - Weldon Shank*							
	2	1-1/4	4-1/2	8	WRC64-8	64540	S.E.	59
	4	1-1/4	6-1/2	8	WRC64-8A	64542	S.E.	59
	8 FLT. NCC - *8% Cobalt Roughers - Fine Pitch - Weldon Shank*							
	2	1-1/4	4-1/2	8	WRCF64-8	64950	S.E.	62
	4	1-1/4	6-1/2	8	WRCF64-8A	64952	S.E.	62
	8 FLUTE NCC - *8% Cobalt Roughers - Coarse Pitch*							
	Combination Shank							
	3	2	6-3/4	8	WRC64-11A	64544	S.E.	59
	4	2	7-3/4	8	WRC64-11B	64546	S.E.	59
	5	2	8-3/4	8	WRC64-11C	64548	S.E.	59
	6	2	9-3/4	8	WRC64-11D	64550	S.E.	59
	7	2	10-3/4	8	WRC64-11E	64552	S.E.	59
	8	2	11-3/4	8	WRC64-11F	64554	S.E.	59
	10	2	13-3/4	8	WRC64-11G	64556	S.E.	59
	12	2	15-3/4	8	WRC64-11H	64558	S.E.	59
	8 FLUTE NCC - *8% Cobalt Roughers - Fine Pitch*							
	Combination Shank							
	3	2	6-3/4	8	WRCF64-11A	64954	S.E.	62
	4	2	7-3/4	8	WRCF64-11B	64956	S.E.	62
	5	2	8-3/4	8	WRCF64-11C	64958	S.E.	62
	6	2	9-3/4	8	WRCF64-11D	64960	S.E.	62
	7	2	10-3/4	8	WRCF64-11E	64962	S.E.	62
	8	2	11-3/4	8	WRCF64-11F	64964	S.E.	62

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
2	**4 - 6 FLUTE BALL END - *HS Steel***							
	Combination Shank							
	4	2	7-3/4	6	RK64-11A	47250	S.E.	43
	5	2	8-3/4	4	R64-11	47188	S.E.	40
	6	2	9-3/4	6	RK64-11B	47252	S.E.	43
	8	2	11-3/4	6	RK64-11C	47254	S.E.	43
	8 FLUTE BALL END - *8% Cobalt Rougher - Coarse Pitch*							
	Center Cutting - Combination Shank							
	4	2	7-3/4	8	WRCR64-11B	64726	S.E.	60
	6	2	9-3/4	8	WRCR64-11D	64728	S.E.	60
	8 FLT. BALL END CTR. CUTTING - *8% Cobalt Roughers - Fine Pitch*							
	Combination Shank							
	4	2	7-3/4	8	WRCRF6-11B	64214	S.E.	63
	6	2	9-3/4	8	WRCRF64-11D	64216	S.E.	63
2-1/4	**2 FLUTE CENTER CUTTING - *HS Steel - Weldon Shank***							
	1-5/8	1-1/4	4-1/8	2	B72-8	25374	S.E.	24
	3	1-1/4	5-1/2	2	BLF72-8	25530	S.E.	25
	6 FLUTE NCC - *HS Steel - Weldon Shank*							
	2	1-1/4	4-1/2	6	A72-8	41966	S.E.	32
2-1/2	**2 FLUTE CENTER CUTTING - *HS Steel - Weldon Shank***							
	3	1-1/4	5-1/2	2	BLF80-8	25532	S.E.	25
	Combination Shank							
	4	2	7-3/4	2	B80-11	25376	S.E.	24
	6	2	9-3/4	2	B80-11A	25378	S.E.	24
	3 FLUTE CENTER CUTTING - *HS Steel*							
	Combination Shank							
	4	2	7-3/4	3	C80-11	31070	S.E.	28
	6	2	9-3/4	3	CL80-11	31142	S.E.	29
	8	2	11-3/4	3	CL80-11A	31144	S.E.	29
	8	2-1/2	12	3	C80-12B	31072	S.E.	28
	4 - 6 - 8 FLUTE NCC - *HS Steel - Weldon Shank*							
	3	1-1/4	5-1/2	8	A80-8	42344	S.E.	32
	Combination Shank							
	4	2	7-3/4	4	A80-11A	41570	S.E.	32
	4	2	7-3/4	6	A80-11	41968	S.E.	32
	4	2-1/2	8	6	A80-12	41970	S.E.	32
	6	2	9-3/4	4	AL80-11A	41748	S.E.	33
	6	2	9-3/4	6	AL80-11	42130	S.E.	33
	6	2-1/2	10	6	A80-12A	41972	S.E.	32
	8	2	11-3/4	6	AE80-11	42218	S.E.	34
	8	2-1/2	12	6	A80-12B	41974	S.E.	32
	10	2-1/2	14	6	A80-12C	41976	S.E.	32
	12	2-1/2	16	6	A80-12D	41978	S.E.	32
	8 FLUTE NCC - *HS Steel Roughers - Coarse Pitch*							
	Combination Shank							
	4	2	7-3/4	8	WR80-11	64082	S.E.	57
	6	2	9-3/4	8	WR80-11A	64084	S.E.	57
	8	2	11-3/4	8	WR80-11B	64086	S.E.	57
	10	2	13-3/4	8	WR80-11C	64088	S.E.	57
	12	2	15-3/4	8	WR80-11D	64090	S.E.	57

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Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
2-1/2	**8 FLT. NCC CREST-KUT - *HS Steel - Combination Shank***							
	4	2	7-3/4	8	KA80-11	66014	S.E.	46
	6	2	9-3/4	8	KA80-11B	66016	S.E.	46
	8	2	11-3/4	8	KA80-11C	66018	S.E.	46
	8 FLUTE NCC - *PM Vanadium Roughers - Coarse Pitch*							
	Combination Shank							
	4	2	7-3/4	8	WRT80-11	64852	S.E.	61
	6	2	9-3/4	8	WRT80-11A	64854	S.E.	61
	8	2	11-3/4	8	WRT80-11B	64856	S.E.	61
	8 FLUTE NCC - *8% Cobalt Roughers - Coarse Pitch*							
	Combination Shank							
	4	2	7-3/4	8	WRC80-11	64560	S.E.	59
	6	2	9-3/4	8	WRC80-11A	64562	S.E.	59
	8	2	11-3/4	8	WRC80-11B	64564	S.E.	59
	10	2	13-3/4	8	WRC80-11C	64566	S.E.	59
	12	2	15-3/4	8	WRC80-11D	64568	S.E.	59
	4 - 6 FLUTE BALL END - *HS Steel*							
	Combination Shank							
	4	2	7-3/4	6	RK80-11	47256	S.E.	43
	5	2	8-3/4	4	R80-11	47190	S.E.	40
	6	2	9-3/4	6	RK80-11A	47258	S.E.	43
3	**2 FLUTE CENTER CUTTING - *HS Steel***							
	Combination Shank							
	4	2-1/2	7-3/4	2	B96-12	25380	S.E.	24
	3 FLUTE CENTER CUTTING - *HS Steel*							
	Combination Shank							
	4	2-1/2	7-3/4	3	C96-12	31074	S.E.	28
	3 FLUTE CENTER CUTTING - *Weldon Shank*							
	6	2-1/2	9-3/4	3	CL96-14A	31146	S.E.	29
	8	2-1/2	11-3/4	3	CL96-14B	31148	S.E.	29
	4 FLUTE CENTER CUTTING - *Weldon Shank*							
	6	2-1/2	9-3/4	4	AC96-14A	42954	S.E.	38
	8	2-1/2	11-3/4	4	AC96-14B	42956	S.E.	38
	10	2-1/2	13-3/4	4	AC96-14C	42958	S.E.	38
	12	2-1/2	15-3/4	4	AC96-14D	42960	S.E.	38
	6 FLUTE NON-CENTER CUTTING - *Weldon Shank*							
	6	2-1/2	9-3/4	6	AY96-14A	42220	S.E.	34
	8	2-1/2	11-3/4	6	AY96-14B	42222	S.E.	34
	10	2-1/2	13-3/4	6	AY96-14C	42224	S.E.	34
	12	2-1/2	15-3/4	6	AY96-14D	42226	S.E.	34
	8 FLUTE NON-CENTER CUTTING - *HS Steel*							
	Combination Shank							
	4	2-1/2	7-3/4	8	A96-12	42346	S.E.	32
	6	2-1/2	9-3/4	8	A96-12A	42348	S.E.	32
	8	2-1/2	11-3/4	8	A96-12B	42352	S.E.	32
	10	2-1/2	13-3/4	8	A96-12C	42354	S.E.	32
	12	2-1/2	15-3/4	8	A96-12D	42356	S.E.	32
	10 FLUTE NCC - *HS Steel Roughers - Coarse Pitch*							
	4	2-1/2	7-3/4	10	WR96-12	64092	S.E.	57
	6	2-1/2	9-3/4	10	WR96-12A	64094	S.E.	57
	8	2-1/2	11-3/4	10	WR96-12B	64096	S.E.	57
	10	2-1/2	13-3/4	10	WR96-12C	64098	S.E.	57
	12	2-1/2	15-3/4	10	WR96-12D	64099	S.E.	57

Diam.	Length of Cut	Diam. of Shank	Overall Length	No. of Flutes	Part No.	Uncoated EDP No.*	Single Double End	Page No.
3	**10 FLT. NCC CREST-KUT - *HS Steel - Combination Shank***							
	4	2-1/2	7-3/4	10	KA96-12	66020	S.E.	46
	6	2-1/2	9-3/4	10	KA96-12B	66022	S.E.	46
	8	2-1/2	11-3/4	10	KA96-12C	66024	S.E.	46
	10 FLUTE NCC - *8% Cobalt Roughers - Coarse Pitch*							
	Combination Shank							
	4	2-1/2	7-3/4	10	WRC96-12	64570	S.E.	59
	6	2-1/2	9-3/4	10	WRC96-12A	64572	S.E.	59
	8	2-1/2	11-3/4	10	WRC96-12B	64574	S.E.	59
	10	2-1/2	13-3/4	10	WRC96-12C	64576	S.E.	59
	12	2-1/2	15-3/4	10	WRC96-12D	64578	S.E.	59

*EDP nos. shown are for uncoated end mills. For TiN or TiCN EDP nos., refer to catalog page noted under "Page No." **Straight Flutes ***No flat on shank 3/16 Diameter Shanks are not flatted.

End Mills

GENERAL PURPOSE AND COBALT

2 FLUTE 22
Designed for milling keyways, slots, pockets & other operations needing plunge cutting & milling. Extra chip room in the flutes provide for efficient metal removal.

3 FLUTE 28
Used primarily in the aerospace and related industries. 8% cobalt high speed steel end mills maintain high red hardness and are resistant to wear.

4 FLUTE 30
Designed for general purpose work including cam milling, die sinking and slot milling. Especially made for machining high strength, heat resistant exotic metals that are beyond the capabilities of conventional high speed end mills.

BALL STYLE 39
Used in die sinking and fillet forming. Smoother blend of flute face at the point where the radius of the ball joins the straight diameter.

2 Flutes

Two Flute End Mills are designed for milling keyways, slots, pockets and other operations requiring a combination of plunge cutting and milling. Ample chip room in the flutes provides for efficient metal removal. In double-end styles, two cutting ends on a single shank offer added economy. Premium 8% Cobalt High Speed Steel End Mills maintain high red hardness and are resistant to wear. Used primarily in the aerospace and related industries, these end mills are especially made for machining high strength, heat resistant exotic metals that are beyond the cutting capabilities of conventional high speed end mills. Weldon's new *UniLead*® precision manufactured leads on end mills 1/2" cutting diameter and larger.

Regular Length Double-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	2	3-1/16	CoBB4-2	29002	29802	29402
9/64	3/8	7/16	2	3-1/8	CoBB141-2	29004	29005	29054
5/32	3/8	7/16	2	3-1/8	CoBB5-2	29006	29007	29056
11/64	3/8	7/16	2	3-1/8	CoBB172-2	29008	29009	29058
3/16	3/8	7/16	2	3-1/8	CoBB6-2	29010	29804	29404
13/64	3/8	1/2	2	3-1/8	CoBB203-2	29012	29013	29062
7/32	3/8	1/2	2	3-1/8	CoBB7-2	29014	29015	29064
15/64	3/8	1/2	2	3-1/8	CoBB234-2	29016	29017	29066
1/4	3/8	1/2	2	3-1/8	CoBB8-2	29018	29806	29406
17/64	3/8	9/16	2	3-1/8	CoBB266-2	29020	29021	29070
9/32	3/8	9/16	2	3-1/8	CoBB9-2	29022	29023	29072
19/64	3/8	9/16	2	3-1/8	CoBB297-2	29024	29025	29074
5/16	3/8	9/16	2	3-1/8	CoBB10-2	29026	29808	29408
21/64	3/8	9/16	2	3-1/8	CoBB328-2	29028	29029	29078
11/32	3/8	9/16	2	3-1/8	CoBB11-2	29030	29031	29080
23/64	3/8	9/16	2	3-1/8	CoBB359-2	29032	29033	29082
3/8	3/8	9/16	2	3-1/8	CoBB12-2	29034	29810	29410
25/64	1/2	13/16	2	3-3/4	CoBB391-3	29036	29037	29086
13/32	1/2	13/16	2	3-13/16	CoBB13-3	29038	29039	29088
27/64	1/2	13/16	2	3-3/4	CoBB422-3	29040	29041	29090
7/16	1/2	13/16	2	3-3/4	CoBB14-3	29042	29043	29092
29/64	1/2	13/16	2	3-3/4	CoBB453-3	29044	29045	29094
15/32	1/2	13/16	2	3-3/4	CoBB15-3	29046	29047	29096
31/64	1/2	13/16	2	3-3/4	CoBB484-3	29048	29049	29098
1/2	1/2	13/16	2	3-3/4	CoBB16-3	29050	29051	29100

High Speed Steel

Cutting Diameter Tolerance is + .0000 – .0015

13/32	1/2	13/16	2	3-13/16	BB13-3	26202	26203	29510
7/16	1/2	13/16	2	3-3/4	BB14-3	26204	26205	29512
15/32	1/2	13/16	2	3-3/4	BB15-3	26206	26207	29514
1/2	1/2	13/16	2	3-3/4	BB16-3	26208	29902	29502
9/16	5/8	1-1/8	2	4-1/2	BB18-4	26210	26209	29518
5/8	5/8	1-1/8	2	4-1/2	BB20-4	26212	29904	29504
11/16	3/4	1-5/16	2	5	BB22-5	26214	26215	29522
3/4	3/4	1-5/16	2	5	BB24-5	26216	29906	29506
13/16	7/8	1-9/16	2	5-1/2	BB26-6	26218	26219	29526
7/8	7/8	1-9/16	2	5-1/2	BB28-6	26220	26221	29528
15/16	1	1-5/8	2	5-7/8	BB30-7	26222	26223	29530
1	1	1-5/8	2	5-7/8	BB32-7	26224	26225	29508

Stub Length Small Diameter, 3/16" Dia. Shank

Double-End
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/32	3/16	3/64	2	2	CoXS1-1	24802	24803	24824
3/64	3/16	1/16	2	2	CoXS-047	24804	24805	24826
1/16	3/16	3/32	2	2	CoXS2-1	24806	24807	24828
5/64	3/16	1/8	2	2	CoXS-078	24808	24809	24830
3/32	3/16	9/64	2	2	CoXS3-1	24810	24811	24832
7/64	3/16	5/32	2	2	CoXS-109	24812	24813	24834
1/8	3/16	3/16	2	2	CoXS4-1	24814	24815	24836
9/64	3/16	7/32	2	2	CoXS-141	24816	24817	24838
5/32	3/16	15/64	2	2	CoXS5-1	24818	24819	24840
11/64	3/16	1/4	2	2	CoXS-172	24820	24821	24842
3/16	3/16	9/32	2	2	CoXS6-1	24822	24823	24844

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

2 Flutes

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/32	3/16	3/32	2	2-1/4	CoX1-1	24902	24903	24924
3/64	3/16	9/64	2	2-1/4	CoX-047	24904	24905	24926
1/16	3/16	7/32	2	2-1/4	CoX2-1	24906	24907	24928
5/64	3/16	15/64	2	2-1/4	CoX-078	24908	24909	24930
3/32	3/16	5/16	2	2-1/4	CoX3-1	24910	24911	24932
7/64	3/16	21/64	2	2-1/4	CoX-109	24912	24913	24934
1/8	3/16	3/8	2	2-1/4	CoX4-1	24914	24915	24936
9/64	3/16	13/32	2	2-1/4	CoX-141	24916	24917	24938
5/32	3/16	7/16	2	2-1/4	CoX5-1	24918	24919	24940
11/64	3/16	1/2	2	2-1/4	CoX-172	24920	24921	24942
3/16	3/16	1/2	2	2-1/4	CoX6-1	24922	24923	24944

Regular Length
Small Diameter, 3/16" Dia. Shank
Double-End

R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

Diameter of Mill	Diameter of Shank	Length Below Shank	Length of Cut	Number of Flutes	Overall Length	Part No.	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/16	3/16	3/8	7/32	2	2-1/2	CoXE2-1	25002	25003	25012
3/32	3/16	1/2	9/32	2	2-5/8	CoXE3-1	25004	25005	25014
1/8	3/16	3/4	3/4	2	3-1/8	CoXE4-1	25006	25007	25016
5/32	3/16	7/8	7/8	2	3-1/4	CoXE5-1	25008	25009	25018
3/16	3/16	1	1	2	3-3/8	CoXE6-1	25010	25011	25020

Long Length
Small Diameter, 3/16" Dia. Shank
Double-End

R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/16	2	2-3/4	CoBSB4-2	28902	28903	28912
5/32	3/8	15/64	2	2-3/4	CoBSB5-2	28904	28905	28914
3/16	3/8	9/32	2	2-3/4	CoBSB6-2	28906	28907	28916
7/32	3/8	21/64	2	2-7/8	CoBSB7-2	28908	28909	28918
1/4	3/8	3/8	2	2-7/8	CoBSB8-2	28910	28911	28920

Stub Length, Double-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	2	3-1/16	CoSBB4-2	29102	29103	29112
3/16	3/8	7/16	2	3-1/8	CoSBB6-2	29104	29105	29114
1/4	3/8	1/2	2	3-1/8	CoSBB8-2	29106	29107	29116
5/16	3/8	9/16	2	3-1/16	CoSBB10-2	29108	29109	29118
3/8	3/8	9/16	2	3-1/16	CoSBB12-2	29110	29111	29120

Straight Flute, Double-End
Rake Tooth

with WELDON Shank R.H. Cut

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .0000 – .0015

7/16	1/2	13/16	2	3-3/4	SBB14-3	26402	26403	26414
1/2	1/2	13/16	2	3-3/4	SBB16-3	26404	26405	26416
5/8	5/8	1-1/8	2	4-1/2	SBB20-4	26406	26407	26418
3/4	3/4	1-5/16	2	5	SBB24-5	26408	26409	26420
7/8	7/8	1-9/16	2	5-1/2	SBB28-6	26410	26411	26422
1	1	1-5/8	2	5-7/8	SBB32-7	26412	26413	26424

High Speed Steel

Cutting Diameter Tolerance is + .0000 – .0015

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

End Mills • General Purpose

2 Flutes

Regular Length Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	2	2-5/16	CoB4-2	28202	29602	29202
5/32	3/8	7/16	2	2-5/16	CoB5-2	28204	28205	28246
3/16	3/8	7/16	2	2-5/16	CoB6-2	28206	29604	29204
7/32	3/8	1/2	2	2-5/16	CoB7-2	28208	28209	28250
1/4	3/8	1/2	2	2-5/16	CoB8-2	28210	29606	29206
9/32	3/8	9/16	2	2-5/16	CoB9-2	28212	28213	28254
5/16	3/8	9/16	2	2-5/16	CoB10-2	28214	29608	29208
11/32	3/8	9/16	2	2-5/16	CoB11-2	28216	28217	25258
3/8	3/8	9/16	2	2-5/16	CoB12-2	28218	29610	29210
13/32	3/8	13/16	2	2-1/2	CoB13-2	28220	28221	28262
7/16	3/8	13/16	2	2-1/2	CoB14-2	28222	28223	28264
15/32	3/8	13/16	2	2-1/2	CoB15-2	28224	28225	28266
1/2	3/8	13/16	2	2-1/2	CoB16-2	28226	28227	28268
1/2	1/2	1	2	3	CoB16-3	28228	28229	28270

Premium 8% Cobalt Steel

- Cutting Diameter Tolerance is + .003 – .000

Two screw drive on 7/8" shanks and larger

5/8	5/8	1-5/16	2	3-7/16	CoB20-4	28230	28231	28272
3/4	3/4	1-5/16	2	3-9/16	CoB24-5	28232	28233	28274
7/8	7/8	1-1/2	2	3-3/4	CoB28-6	28234	28235	28276
1	1	1-5/8	2	4-1/8	CoB32-7	28236	28237	28278
1-1/4	1-1/4	1-5/8	2	4-1/8	CoB40-8	28238	28239	28280
1-1/2	1-1/4	1-5/8	2	4-1/8	CoB48-8	28240	28241	28282
2	1-1/4	1-5/8	2	4-1/8	CoB64-8	28242	28243	28284

High Speed Steel

- Cutting Diameter Tolerance is + .003 – .000

Two screw drive on 7/8" shanks and larger

1/2	3/8	13/16	2	2-1/2	B16-2	25302	25303	25300
1/2	1/2	1	2	3	B16-3	25304	29702	29302
9/16	1/2	1-1/8	2	3-1/8	B18-3	25306	25307	25381
5/8	1/2	1-1/8	2	3-1/8	B20-3	25308	25309	25382
11/16	1/2	1-5/16	2	3-5/16	B22-3	25312	25313	25384
3/4	1/2	1-5/16	2	3-5/16	B24-3	25316	25317	25386
5/8	5/8	1-5/16	2	3-7/16	B20-4	25310	29704	29304
11/16	5/8	1-5/16	2	3-7/16	B22-4	25314	25315	25385
3/4	5/8	1-5/16	2	3-7/16	B24-4	25318	25319	25387
13/16	5/8	1-1/2	2	3-5/8	B26-4	25322	25323	25389
7/8	5/8	1-1/2	2	3-5/8	B28-4	25324	25325	25390
15/16	5/8	1-1/2	2	3-5/8	B30-4	25330	25331	25393
1	5/8	1-1/2	2	3-5/8	B32-4	25334	25335	25395
3/4	3/4	1-5/16	2	3-9/16	B24-5	25320	29706	29306
7/8	3/4	1-1/2	2	3-3/4	B28-5	25326	25327	25391
1	3/4	1-1/2	2	3-3/4	B32-5	25336	25337	25396
7/8	7/8	1-1/2	2	3-3/4	B28-6	25328	25329	25392
15/16	7/8	1-1/2	2	3-3/4	B30-6	25332	25333	25394
1	7/8	1-1/2	2	3-3/4	B32-6	25338	25339	25397
1-1/8	7/8	1-5/8	2	3-7/8	B36-6	25342	25343	25399
1-1/4	7/8	1-5/8	2	3-7/8	B40-6	25346	25347	25401
1	1	1-5/8	2	4-1/8	B32-7	25340	29708	29308
1-1/8	1	1-5/8	2	4-1/8	B36-7	25344	25345	25400
1-1/4	1	1-5/8	2	4-1/8	B40-7	25348	25349	25456
1-3/8	1	1-5/8	2	4-1/8	B44-7	25352	25353	25458
1-1/2	1	1-5/8	2	4-1/8	B48-7	25354	25355	25459
1-1/4	1-1/4	1-5/8	2	4-1/8	B40-8	25350	25351	25457
1-1/2	1-1/4	1-5/8	2	4-1/8	B48-8	25356	25357	25460
1-5/8	1-1/4	1-5/8	2	4-1/8	B52-8	25358	25359	25461
1-3/4	1-1/4	1-5/8	2	4-1/8	B56-8	25360	25361	25462
1-7/8	1-1/4	1-5/8	2	4-1/8	B60-8	25362	25363	25463
2	1-1/4	1-5/8	2	4-1/8	B64-8	25364	25365	25464
2-1/4	1-1/4	1-5/8	2	4-1/8	B72-8	25374		

Combination Shank

COMBINATION SHANKS

2	2	2	2	5-3/4	B64-11B	25366	25367	25465
2	2	3	2	6-3/4	B64-11A	25368	25369	25466
2	2	4	2	7-3/4	B64-11	25370	25371	25467
2	2	6	2	9-3/4	B64-11D	25372	25373	25468
2-1/2	2	4	2	7-3/4	B80-11	25376		
2-1/2	2	6	2	9-3/4	B80-11A	25378		
3	2-1/2	4	2	7-3/4	B96-12	25380		

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

2 Flutes

Medium Length, Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

High Speed Steel

- Cutting Diameter Tolerance is + .003 – .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
3/8	3/8	1	2	2-3/4	CoBMF12-2	28302	28303	29068
1/2	1/2	1-1/2	2	3-1/2	BMF16-3	25402	25403	25430
5/8	5/8	1-5/8	2	3-3/4	BMF20-4	25404	25405	25432
3/4	3/4	1-3/4	2	4	BMF24-5	25406	25407	25434
7/8	7/8	2	2	4-1/4	BMF28-6	25408	25409	25436
1	1	2-1/4	2	4-3/4	BMF32-7	25410	25411	25438
1-1/8	1	2-1/4	2	4-3/4	BMF36-7	25412	25413	25440
1-1/4	1	2-1/4	2	4-3/4	BMF40-7	25414	25415	25442
1-3/8	1	2-1/4	2	4-3/4	BMF44-7	25418	25419	25446
1-1/4	1-1/4	2-1/4	2	4-3/4	BMF40-8	25416	25417	25444
1-1/2	1-1/4	2-1/4	2	4-3/4	BMF48-8	25420	25421	25448
1-5/8	1-1/4	2-1/4	2	4-3/4	BMF52-8	25422	25423	25450
1-3/4	1-1/4	2-1/4	2	4-3/4	BMF56-8	25424	25425	25452
1-7/8	1-1/4	2-1/4	2	4-3/4	BMF60-8	25426	25427	25454
2	1-1/4	2-1/4	2	4-3/4	BMF64-8	25428	25429	25455

Long Length, Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

High Speed Steel

- Cutting Diameter Tolerance is + .003 – .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
3/8	3/8	1-1/2	2	3-1/4	CoBLF12-2	28402	28403	28404
1/2	1/2	2	2	4	BLF16-3	25502	25503	25534
5/8	5/8	2	2	4-1/8	BLF20-4	25504	25505	25536
3/4	3/4	2-1/4	2	4-1/2	BLF24-5	25506	25507	25538
7/8	7/8	2-1/2	2	4-3/4	BLF28-6	25508	25509	25540
1	1	3	2	5-1/2	BLF32-7	25510	25511	25542
1-1/8	1	3	2	5-1/2	BLF36-7	25512	25513	25544
1-1/4	1	3	2	5-1/2	BLF40-7	25514	25515	25546
1-3/8	1	3	2	5-1/2	BLF44-7	25518	25519	25550
1-1/4	1-1/4	3	2	5-1/2	BLF40-8	25516	25517	25548
1-1/2	1-1/4	3	2	5-1/2	BLF48-8	25520	25521	25552
1-5/8	1-1/4	3	2	5-1/2	BLF52-8	25522	25523	25554
1-3/4	1-1/4	3	2	5-1/2	BLF56-8	25524	25525	25556
1-7/8	1-1/4	3	2	5-1/2	BLF60-8	25526	25527	25558
2	1-1/4	3	2	5-1/2	BLF64-8	25528	25529	25560
2-1/4	1-1/4	3	2	5-1/2	BLF72-8	25530		
2-1/2	1-1/4	3	2	5-1/2	BLF80-8	25532		

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

End Mills • General Purpose

2 Flutes

Extended Length Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

Diameter of Mill	Diameter of Shank	Length Below Shank	Length of Cut	Number of Flutes	Overall Length	Part No.	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	13/16	3/8	2	2-3/8	CoBL4-2	28502	28503	28512
3/16	3/8	1-1/8	1/2	2	2-11/16	CoBL6-2	28504	28505	28514
1/4	3/8	1-1/2	5/8	2	3-1/16	CoBL8-2	28506	28507	28516
5/16	3/8	1-3/4	3/4	2	3-5/16	CoBL10-2	28508	28509	28518
3/8	3/8	1-3/4	3/4	2	3-5/16	CoBL12-2	28510	28511	28520

High Speed Steel

- Cutting Diameter Tolerance is + .003 – .000

Two screw drive on 7/8" shanks and larger

1/2	1/2	2-1/4	1	2	4	BL16-3	25602	25603	25614
5/8	5/8	2-3/4	1-3/8	2	4-5/8	BL20-4	25604	25605	25616
3/4	3/4	3-3/8	1-5/8	2	5-3/8	BL24-5	25606	25607	25618
7/8	7/8	4	2	2	6	BL28-6	25608	25609	25620
1	1	5	2-1/2	2	7-1/4	BL32-7	25610	25611	25622
1-1/4	1-1/4	5	3	2	7-1/4	BL40-8	25612	25613	25624

Straight Flute, Single-End Rake Tooth

with WELDON Shank
R.H. Cut

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .0000 – .0015

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	2	2-5/16	CoSB4-2	28602	28603	28612
3/16	3/8	7/16	2	2-5/16	CoSB6-2	28604	28605	28614
1/4	3/8	1/2	2	2-5/16	CoSB8-2	28606	28607	28616
5/16	3/8	9/16	2	2-5/16	CoSB10-2	28608	28609	28618
3/8	3/8	9/16	2	2-5/16	CoSB12-2	28610	28611	28620

High Speed Steel

- Cutting Diameter Tolerance is + .0000 – .0015

Two screw drive on 7/8" shanks and larger

1/2	1/2	1	2	3	SB16-3	25702	25703	25720
5/8	5/8	1-5/16	2	3-7/16	SB20-4	25704	25705	25722
3/4	3/4	1-5/16	2	3-9/16	SB24-5	25706	25707	25724
7/8	7/8	1-1/2	2	3-3/4	SB28-6	25708	25709	25726
1	7/8	1-1/2	2	3-3/4	SB32-6	25710	25711	25728
1-1/8	7/8	1-5/8	2	3-7/8	SB36-6	25712	25713	25730
1-1/4	7/8	1-5/8	2	3-7/8	SB40-6	25714	25715	25732
1-1/4	1-1/4	1-5/8	2	4-1/8	SB40-8	25716	25717	25734
1-1/2	1-1/4	1-5/8	2	4-1/8	SB48-8	25718	25719	25736

Short Length, Single-End

Plain Shank
R.H. Cut, R.H. Helix
Shank diameter same as flute diameter

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/4	1/4	3/8	2	1-7/16	BSF-8	25202	25203	25214
5/16	5/16	15/32	2	1-9/16	BSF-10	25204	25205	25216
3/8	3/8	9/16	2	1-5/8	BSF-12	25206	25207	25218
1/2	1/2	3/4	2	2-1/16	BSF-16	25208	25209	25220
5/8	5/8	15/16	2	2-5/16	BSF-20	25210	25211	25222
3/4	3/4	1-1/8	2	2-1/2	BSF-24	25212	25213	25224

High Speed Steel

- Cutting Diameter Tolerance is + .0000 – .0015

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

2 Flutes

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
3/16	3/8	7/16	2	2-5/16	CoB6-2FC	28802	28803	28810
1/4	3/8	1/2	2	2-5/16	CoB8-2FC	28804	28805	28812
5/16	3/8	9/16	2	2-5/16	CoB10-2FC	28806	28807	28814
3/8	3/8	9/16	2	2-5/16	CoB12-2FC	28808	28809	28816

.001 to .0015 Over Basic Diameter Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	2	2-5/16	CoB4-2K	28702	28703	28712
3/16	3/8	7/16	2	2-5/16	CoB6-2K	28704	28705	28714
1/4	3/8	1/2	2	2-5/16	CoB8-2K	28706	28707	28716
5/16	3/8	9/16	2	2-5/16	CoB10-2K	28708	28709	28718
3/8	3/8	9/16	2	2-5/16	CoB12-2K	28710	28711	28720

Two Flute, Helical Single-End End Mills For Keyway Cutting

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance + .0000 / – .0015

1/2	1/2	1	2	3	B16-3K	25902	25903	25916
5/8	5/8	1-5/16	2	3-7/16	B20-4K	25904	25905	25918
3/4	3/4	1-5/16	2	3-9/16	B24-5K	25906	25907	25920
7/8	7/8	1-1/2	2	3-3/4	B28-6K	25908	25909	25922
1	1	1-5/8	2	4-1/8	B32-7K	25910	25911	25924
1-1/4	1-1/4	1-5/8	2	4-1/8	B40-8K	25912	25913	25926
1-1/2	1-1/4	1-5/8	2	4-1/8	B48-8K	25914	25915	25928

High Speed Steel

- Cutting Diameter Tolerance is + .0000 – .0015

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/16	2	2-1/8	CoBS4-2	28002	28003	28008
3/16	3/8	9/32	2	2-3/16	CoBS6-2	28004	28005	28010
1/4	3/8	3/8	2	2-1/4	CoBS8-2	28006	28007	28012

Stub Length, Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

3 Flutes Center Cutting

Weldon three flute end mills are center-cutting permitting combinations of plunge cutting and milling with good finishes. **Generous chip room in the flutes provides for efficient metal removal.** Double-end style offers added economy with two cutting ends on a single shank. Premium 8% Cobalt High Speed Steel End Mills maintain high red hardness and are resistant to wear. **Used primarily in the aerospace and related industries,** these end mills are especially made for machining high strength, heat resistant exotic metals that are beyond the cutting capabilities of conventional high speed end mills. Weldon's new *UniLead*® **precision manufactured leads on end mill 1/2" cutting diameter and larger.**

Regular Length Single-End "C" Style

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

High Speed Steel

- Cutting Diameter Tolerance is + .003 – .000

Two screw drive on 7/8" shanks and larger

Combination Shank

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	3	2-5/16	CoC4-2	32010	32011	32032
5/32	3/8	1/2	3	2-3/8	CoC5-2	32012	32013	32034
3/16	3/8	1/2	3	2-3/8	CoC6-2	32014	32015	32036
7/32	3/8	5/8	3	2-7/16	CoC7-2	32016	32017	32038
1/4	3/8	5/8	3	2-7/16	CoC8-2	32018	32019	32040
9/32	3/8	3/4	3	2-1/2	CoC9-2	32020	32021	32042
5/16	3/8	3/4	3	2-1/2	CoC10-2	32022	32023	32044
11/32	3/8	3/4	3	2-1/2	CoC11-2	32024	32025	32046
3/8	3/8	3/4	3	2-1/2	CoC12-2	32026	32027	32048
13/32	3/8	1	3	2-11/16	CoC13-2	32028	32029	32050
7/16	3/8	1	3	2-11/16	CoC14-2	32030	32031	32052
1/2	3/8	1	3	2-11/16	C16-2	31020	31021	31002
1/2	1/2	1-1/4	3	3-1/4	C16-3	31022	31023	31004
9/16	1/2	1-3/8	3	3-3/8	C18-3	31024	31025	31006
5/8	1/2	1-3/8	3	3-3/8	C20-3	31026	31027	31008
5/8	5/8	1-5/8	3	3-3/4	C20-4	31028	31029	31010
3/4	1/2	1-5/8	3	3-5/8	C24-3	31030	31031	31012
3/4	5/8	1-5/8	3	3-3/4	C24-4	31032	31033	31014
3/4	3/4	1-5/8	3	3-7/8	C24-5	31034	31035	31016
7/8	5/8	1-7/8	3	4	C28-4	31036	31037	31018
7/8	3/4	1-7/8	3	4-1/8	C28-5	31038	31039	31076
7/8	7/8	1-7/8	3	4-1/8	C28-6	31040	31041	31078
1	5/8	1-7/8	3	4	C32-4	31042	31043	31080
1	3/4	1-7/8	3	4-1/8	C32-5	31044	31045	31082
1	7/8	1-7/8	3	4-1/8	C32-6	31046	31047	31084
1	1	2	3	4-1/2	C32-7	31048	31049	31086
1-1/8	1	2	3	4-1/2	C36-7	31050	31051	31088
1-1/4	1	2	3	4-1/2	C40-7	31052	31053	31090
1-1/4	1-1/4	2	3	4-1/2	C40-8	31054	31055	31092
1-1/2	1	2	3	4-1/2	C48-7	31056	31057	31094
1-1/2	1-1/4	2	3	4-1/2	C48-8	31058	31059	31096
1-3/4	1-1/4	2	3	4-1/2	C56-8	31060	31061	31098
2	1-1/4	2	3	4-1/2	C64-8	31062	31063	31097

COMBINATION SHANKS

2	2	2	3	5-3/4	C64-11B	31064	31065	31095
2	2	3	3	6-3/4	C64-11A	31066	31067	31093
2	2	4	3	7-3/4	C64-11	31068	31069	31091
2-1/2	2	4	3	7-3/4	C80-11	31070		
2-1/2	2-1/2	8	3	12	C80-12B	31072		
3	2-1/2	4	3	7-3/4	C96-12	31074		

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Center Cutting 3 Flutes

Long Length Single-End, "CL" Style

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

High Speed Steel

- Cutting Diameter Tolerance is + .003 – .000

Two screw drive 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/4	3/8	1-1/4	3	3-1/8	CoCL8-2	32110	32111	32116
5/16	3/8	1-3/8	3	3-3/16	CoCL10-2	32112	32113	32118
3/8	3/8	1-1/2	3	3-1/4	CoCL12-2	32114	32115	32120
7/16	1/2	1-3/4	3	3-3/4	CL14-3	31120	31121	31150
1/2	1/2	2	3	4	CL16-3	31122	31123	31152
5/8	5/8	2-1/2	3	4-5/8	CL20-4	31124	31125	31154
3/4	3/4	3	3	5-1/4	CL24-5	31126	31127	31156
7/8	7/8	3-1/2	3	5-3/4	CL28-6	31128	31129	31158
1	1	4	3	6-1/2	CL32-7	31130	31131	31160
1-1/4	1-1/4	4	3	6-1/2	CL40-8	31132	31133	31162
1-1/2	1-1/4	4	3	6-1/2	CL48-8	31134	31135	31164
1-3/4	1-1/4	4	3	6-1/2	CL56-8	31136	31137	31166
2	1-1/4	4	3	6-1/2	CL64-8	31138	31139	31170
3	2-1/2	6	3	9-3/4	CL96-14A	31146		
3	2-1/2	8	3	11-3/4	CL96-14B	31148		

COMBINATION SHANKS

2	2	6	3	9-3/4	CL64-11	31140	31141	31168
2-1/2	2	6	3	9-3/4	CL80-11	31142		
2-1/2	2	8	3	11-3/4	CL80-11A	31144		

Regular Length, Double-End

with WELDON Shank
R.H. Cut, R.H. Helix

Double-end style offers added economy with two cutting ends on a single shank.

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

High Speed Steel

- Cutting Diameter Tolerance is + .0000 – .0015

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	3	3-1/16	CoCC4-2	32210	32211	32244
9/64	3/8	7/16	3	3-1/8	CoCC141-2	32212	32213	32246
5/32	3/8	7/16	3	3-1/8	CoCC5-2	32214	32215	32248
11/64	3/8	1/2	3	3-1/4	CoCC172-2	32216	32217	32250
3/16	3/8	1/2	3	3-1/4	CoCC6-2	32218	32219	32252
13/64	3/8	9/16	3	3-1/4	CoCC203-2	32220	32221	32254
7/32	3/8	9/16	3	3-1/4	CoCC7-2	32222	32223	32256
15/64	3/8	5/8	3	3-3/8	CoCC234-2	32224	32225	32258
1/4	3/8	5/8	3	3-3/8	CoCC8-2	32226	32227	32260
17/64	3/8	11/16	3	3-3/8	CoCC266-2	32228	32229	32262
9/32	3/8	11/16	3	3-3/8	CoCC9-2	32230	32231	32264
19/64	3/8	3/4	3	3-1/2	CoCC297-2	32232	32233	32266
5/16	3/8	3/4	3	3-1/2	CoCC10-2	32234	32235	32268
21/64	3/8	3/4	3	3-1/2	CoCC328-2	32236	32237	32270
11/32	3/8	3/4	3	3-1/2	CoCC11-2	32238	32239	32272
23/64	3/8	3/4	3	3-1/2	CoCC359-2	32240	32241	32274
3/8	3/8	3/4	3	3-1/2	CoCC12-2	32242	32243	32276
7/16	1/2	1	3	4-1/8	CC14-3	31220	31221	31234
1/2	1/2	1	3	4-1/8	CC16-3	31222	31223	31236
9/16	5/8	1-1/4	3	5	CC18-4	31224	31225	31238
5/8	5/8	1-1/4	3	5	CC20-4	31226	31227	31240
3/4	3/4	1-1/2	3	5-3/8	CC24-5	31228	31229	31242
7/8	7/8	1-3/4	3	5-7/8	CC28-6	31230	31231	31244
1	1	1-3/4	3	6-1/8	CC32-7	31232	31233	31246

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

End Mills • General Purpose

4 Flutes

These end mills are designed for general purpose work including cam milling, die sinking and slot milling. Double-end styles offer added economy with two cutting ends on a single shank. End mills 13/32" diameter and larger are regularly furnished with standard non-center cutting. Premium 8% Cobalt High Speed Steel End Mills maintain high red hardness and are resistant to wear. **Used primarily in the aerospace and related industries,** these end mills are especially made for machining high strength, heat resistant exotic metals that are beyond the cutting capabilities of conventional high speed end mills. Weldon's new *UniLead*® precision manufactured leads on end mills 1/2" cutting diameter and larger.

Regular Length Double-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	4	3-1/16	CoAA4-2	45910	49802	49402
9/64	3/8	7/16	4	3-1/8	CoAA141-2	45912	45913	49445
5/32	3/8	7/16	4	3-1/8	CoAA5-2	45914	45915	49444
11/64	3/8	1/2	4	3-1/4	CoAA172-2	45916	45917	49446
3/16	3/8	1/2	4	3-1/4	CoAA6-2	45918	49804	49404
13/64	3/8	9/16	4	3-1/4	CoAA203-2	45920	45921	49450
7/32	3/8	9/16	4	3-1/4	CoAA7-2	45922	45923	49452
15/64	3/8	5/8	4	3-3/8	CoAA234-2	45924	45925	49454
1/4	3/8	5/8	4	3-3/8	CoAA8-2	45926	49806	49406
17/64	3/8	11/16	4	3-3/8	CoAA266-2	45928	45929	49458
9/32	3/8	11/16	4	3-3/8	CoAA9-2	46002	46003	49412
19/64	3/8	3/4	4	3-1/2	CoAA297-2	46004	46005	49414
5/16	3/8	3/4	4	3-1/2	CoAA10-2	46006	49808	49408
21/64	3/8	3/4	4	3-1/2	CoAA328-2	46008	46009	49418
11/32	3/8	3/4	4	3-1/2	CoAA11-2	46010	46011	49420
23/64	3/8	3/4	4	3-1/2	CoAA359-2	46012	46013	49422
3/8	3/8	3/4	4	3-1/2	CoAA12-2	46014	49810	49410
25/64	1/2	1	4	4-1/8	CoAA391-3	46016	46017	49426
13/32	1/2	1	4	4-3/16	CoAA13-3	46018	46019	49428
27/64	1/2	1	4	4-1/8	CoAA422-3	46020	46021	49434
7/16	1/2	1	4	4-1/8	CoAA14-3	46022	46023	49432
29/64	1/2	1	4	4-1/8	CoAA453-3	46024	46025	49438
15/32	1/2	1	4	4-1/8	CoAA15-3	46026	46027	49436
31/64	1/2	1	4	4-1/8	CoAA484-3	46028	46029	49440
1/2	1/2	1	4	4-1/8	CoAA16-3	46030	46031	49442

High Speed Steel, Non-Center Cutting

- Cutting Diameter Tolerance is + .003 – .000

13/32	1/2	1	4	4-3/16	AA13-3	42540	42541	42564
7/16	1/2	1	4	4-1/8	AA14-3	42542	42543	42566
15/32	1/2	1	4	4-1/8	AA15-3	42544	42545	42568
1/2	1/2	1	4	4-1/8	AA16-3	42546	42547	42570
9/16	5/8	1-3/8	4	5	AA18-4	42548	42549	42572
5/8	5/8	1-3/8	4	5	AA20-4	42550	42551	42574
11/16	3/4	1-5/8	4	5-5/8	AA22-5	42552	42553	42576
3/4	3/4	1-5/8	4	5-5/8	AA24-5	42554	42555	42578
13/16	7/8	1-7/8	4	6-1/8	AA26-6	42556	42557	42580
7/8	7/8	1-7/8	4	6-1/8	AA28-6	42558	42559	42582
15/16	1	1-7/8	4	6-3/8	AA30-7	42560	42561	42584
1	1	1-7/8	4	6-3/8	AA32-7	42562	42563	42585

Stub Length Small Diameter, 3/16" Dia. Shank Double-End

R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/16	3/16	3/32	4	2	CoWS2-1	41010	41011	41020
3/32	3/16	9/64	4	2	CoWS3-1	41012	41013	41022
1/8	3/16	3/16	4	2	CoWS4-1	41014	41015	41024
5/32	3/16	15/64	4	2	CoWS5-1	41016	41017	41026
3/16	3/16	9/32	4	2	CoWS6-1	41018	41019	41028

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

4 Flutes

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/16	3/16	3/16	4	2-1/4	CoW2-1	41110	41111	41120
3/32	3/16	9/32	4	2-1/4	CoW3-1	41112	41113	41122
1/8	3/16	3/8	4	2-1/4	CoW4-1	41114	41115	41124
5/32	3/16	7/16	4	2-1/4	CoW5-1	41116	41117	41126
3/16	3/16	1/2	4	2-1/4	CoW6-1	41118	41119	41128

Regular Length, Double-End Small Diameter, 3/16" Dia. Shank

R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

Diameter of Mill	Diameter of Shank	Length Below Shank	Length of Cut	Number of Flutes	Overall Length	Part No.	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/16	3/16	3/8	7/32	4	2-1/2	CoWE2-1	41210	41211	41220
3/32	3/16	1/2	9/32	4	2-5/8	CoWE3-1	41212	41213	41222
1/8	3/16	3/4	3/4	4	3-1/8	CoWE4-1	41214	41215	41224
5/32	3/16	7/8	7/8	4	3-1/4	CoWE5-1	41216	41217	41226
3/16	3/16	1	1	4	3-3/8	CoWE6-1	41218	41219	41228

Long Length, Double-End Small Diameter, 3/16" Dia. Shank

R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/16	4	2-3/4	CoASA4-2	45810	45811	45820
5/32	3/8	15/64	4	2-3/4	CoASA5-2	45812	45813	45823
3/16	3/8	9/32	4	2-3/4	CoASA6-2	45814	45815	45822
7/32	3/8	21/64	4	2-7/8	CoASA7-2	45816	45817	45826
1/4	3/8	3/8	4	2-7/8	CoASA8-2	45818	45819	45828

Stub Length, Double-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	4	2-5/16	CoA4-2	44110	49602	49202
5/32	3/8	1/2	4	2-3/8	CoA5-2	44112	44113	44166
3/16	3/8	1/2	4	2-3/8	CoA6-2	44114	49604	49204
7/32	3/8	5/8	4	2-7/16	CoA7-2	44116	44117	44170
1/4	3/8	5/8	4	2-7/16	CoA8-2	44118	49606	49206
9/32	3/8	3/4	4	2-1/2	CoA9-2	44120	44121	44174
5/16	3/8	3/4	4	2-1/2	CoA10-2	44122	49608	49208
11/32	3/8	3/4	4	2-1/2	CoA11-2	44124	44125	44178
3/8	3/8	3/4	4	2-1/2	CoA12-2	44126	49610	49210
13/32	3/8	1	4	2-11/16	CoA13-2	44128	44129	44182
7/16	3/8	1	4	2-11/16	CoA14-2	44130	44131	44184
15/32	3/8	1	4	2-11/16	CoA15-2	44132	44133	44186
1/2	3/8	1	4	2-11/16	CoA16-2	44134	44135	44188

Regular Length, Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	1-1/4	4	3-1/4	CoAC16-3	44136	44137	44150
1/2	1/2	1-1/4	6	3-1/4	CoKC16-3	44540	44541	44554
5/8	5/8	1-5/8	4	3-3/4	CoAC20-4	44138	44139	44152
5/8	5/8	1-5/8	6	3-3/4	CoKC20-4	44542	44543	44556
3/4	3/4	1-5/8	4	3-7/8	CoAC24-5	44140	44141	44154
3/4	3/4	1-5/8	6	3-7/8	CoKC24-5	44544	44545	44558
7/8	7/8	1-7/8	4	4-1/8	CoAC28-6	44142	44143	44156
1	1	2	4	4-1/2	CoAC32-7	44144	44145	44158
1	1	2	6	4-1/2	CoKC32-7	44546	44547	44560
1-1/4	1-1/4	2	4	4-1/2	CoAC40-8	44146	44147	44160
1-1/4	1-1/4	2	6	4-1/2	CoKC40-8	44548	44549	44562
1-1/2	1-1/4	2	4	4-1/2	CoAC48-8	44148	44149	44162
1-1/2	1-1/4	2	6	4-1/2	CoKC48-8	44550	44551	44564

Regular Length, Right Hand Four or Six Flute, Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance 1/2" & under is + .001 – .000
  Over 1/2" is + .003 – .000

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

4 Flutes or more

Regular Length, Single-End
with WELDON Shank
R.H. Cut, R.H. Helix

High Speed Steel, Non-Center Cutting
• Cutting Diameter Tolerance is + .003
– .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	3/8	1	4	2-11/16	A16-2	41530	41531	41502
1/2	1/2	1-1/4	4	3-1/4	A16-3	41532	41533	49302
9/16	1/2	1-3/8	4	3-3/8	A18-3	41534	41535	41506
5/8	1/2	1-3/8	4	3-3/8	A20-3	41536	41537	41508
11/16	1/2	1-5/8	4	3-5/8	A22-3	41540	41541	41512
3/4	1/2	1-5/8	4	3-5/8	A24-3	41544	41545	41516
5/8	5/8	1-5/8	4	3-3/4	A20-4	41538	41539	49304
11/16	5/8	1-5/8	4	3-3/4	A22-4	41542	41543	41514
3/4	5/8	1-5/8	4	3-3/4	A24-4	41546	41547	41518
13/16	5/8	1-7/8	6	4	A26-4	41930	41931	41902
7/8	5/8	1-7/8	6	4	A28-4	41932	41933	41904
15/16	5/8	1-7/8	6	4	A30-4	41934	41935	41906
1	5/8	1-7/8	6	4	A32-4	41936	41937	41908
3/4	3/4	1-5/8	4	3-7/8	A24-5	41548	41549	49306
7/8	3/4	1-7/8	4	4-1/8	A28-5	41550	41551	41522
1	3/4	1-7/8	4	4-1/8	A32-5	41556	41557	41528
7/8	7/8	1-7/8	4	4-1/8	A28-6	41552	41553	41524
15/16	7/8	1-7/8	4	4-1/8	A30-6	41554	41555	41526
1	7/8	1-7/8	4	4-1/8	A32-6	41558	41559	41572
1-1/8	7/8	2	6	4-1/4	A36-6	41938	41939	41910
1-1/4	7/8	2	6	4-1/4	A40-6	41942	41943	41914
1	1	2	4	4-1/2	A32-7	41560	41561	49308
1-1/8	1	2	6	4-1/2	A36-7	41940	41941	41912
1-1/4	1	2	6	4-1/2	A40-7	41944	41945	41916
1-3/8	1	2	6	4-1/2	A44-7	41948	41949	41920
1-1/2	1	2	6	4-1/2	A48-7	41950	41951	41922
1-1/4	1-1/4	2	6	4-1/2	A40-8	41946	41947	41918
1-1/4	1-1/4	2	4	4-1/2	A40-8A	41562	41563	41576
1-1/2	1-1/4	2	6	4-1/2	A48-8	41952	41953	41924
1-1/2	1-1/4	2	4	4-1/2	A48-8A	41564	41565	41578
1-5/8	1-1/4	2	6	4-1/2	A52-8	41954	41955	41926
1-3/4	1-1/4	2	6	4-1/2	A56-8	41956	41957	41928
1-7/8	1-1/4	2	6	4-1/2	A60-8	41958	41959	41980
2	1-1/4	2	6	4-1/2	A64-8	41960	41961	41982
2	1-1/4	2	8	4-1/2	A64-8A	42340	42341	42358
2-1/4	1-1/4	2	6	4-1/2	A72-8	41966		
2-1/2	1-1/4	3	8	5-1/2	A80-8	42344		

COMBINATION SHANKS

2	2	2	4	5-3/4	A64-11D	41566	41567	41580
2	2	2	6	5-3/4	A64-11E	41962	41963	41984
2	2	4	4	7-3/4	A64-11	41568	41569	41582
2	2	4	6	7-3/4	A64-11A	41964	41965	41986
2-1/2	2	4	4	7-3/4	A80-11A	41570		
2-1/2	2	4	6	7-3/4	A80-11	41968		
2-1/2	2-1/2	4	6	8	A80-12	41970		
2-1/2	2-1/2	6	6	10	A80-12A	41972		
2-1/2	2-1/2	8	6	12	A80-12B	41974		
2-1/2	2-1/2	10	6	14	A80-12C	41976		
2-1/2	2-1/2	12	6	16	A80-12D	41978		
3	2-1/2	4	8	7-3/4	A96-12	42346		
3	2-1/2	6	8	9-3/4	A96-12A	42348		
3	2-1/2	8	8	11-3/4	A96-12B	42352		
3	2-1/2	10	8	13-3/4	A96-12C	42354		
3	2-1/2	12	8	15-3/4	A96-12D	42356		

Combination Shank

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

4 Flutes or more

Medium Length, Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

High Speed Steel, Non-Center Cutting

- Cutting Diameter Tolerance is + .003
  – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1	1	3	4	5-1/2	AM32-7	41630	41631	41636
1-1/4	1-1/4	3	4	5-1/2	AM40-8	41632	41633	41638
1-1/2	1-1/4	3	4	5-1/2	AM48-8	41634	41635	41640
1-3/4	1-1/4	3	6	5-1/2	AM56-8	42030	42031	41642
2	1-1/4	3	6	5-1/2	AM64-8	42032	42033	41644

Long Length, Right Hand
Four or Six Flute, Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance :
  1/2" & Under is + .001
  – .000
  Over 1/2" is + .003
  – .000

High Speed Steel, Non-Center Cutting

- Cutting Diameter Tolerance is + .003
  – .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/4	3/8	1-1/4	4	3-1/16	CoA8-2A	44310	44311	44348
5/16	3/8	1-3/8	4	3-1/8	CoA10-2A	44312	44313	44350
3/8	3/8	1-1/2	4	3-1/4	CoA12-2A	44314	44315	44352
1/2	1/2	2	4	4	CoAC16-3A	44240	44241	44252
5/8	5/8	2-1/2	4	4-5/8	CoAC20-4A	44242	44243	44254
3/4	3/4	2	4	4-1/4	CoAC24-5A	44244	44245	44256
3/4	3/4	2	6	4-1/4	CoKC24-5A	44640	44641	44561
1	1	3	4	5-1/2	CoAC32-7C	44246	44247	44258
1	1	3	6	5-1/2	CoKC32-7C	44642	44643	44652
1-1/4	1-1/4	3	4	5-1/2	CoAC40-8C	44248	44249	44260
1-1/4	1-1/4	3	6	5-1/2	CoKC40-8C	44644	44645	44654
1-1/2	1-1/4	3	4	5-1/2	CoAC48-8C	44250	44251	44262
1-1/2	1-1/4	3	6	5-1/2	CoKC48-8C	44646	44647	44656
7/16	1/2	1-3/4	4	3-3/4	AL14-3	41730	41731	41750
1/2	1/2	2	4	4	AL16-3	41732	41733	41752
5/8	5/8	2-1/2	4	4-5/8	AL20-4	41734	41735	41754
3/4	3/4	3	4	5-1/4	AL24-5	41736	41737	41756
7/8	7/8	3-1/2	4	5-3/4	AL28-6	41738	41739	41758
1	1	4	4	6-1/2	AL32-7	41740	41741	41760
1-1/8	1	4	6	6-1/2	AL36-7	42110	42111	41762
1-1/4	1	4	6	6-1/2	AL40-7	42112	42113	42132
1-3/8	1	4	6	6-1/2	AL44-7	42116	42117	42136
1-1/2	1	4	6	6-1/2	AL48-7	42118	42119	42138
1-1/4	1-1/4	4	6	6-1/2	AL40-8	42114	42115	42134
1-1/4	1-1/4	4	4	6-1/2	AL40-8A	41742	41743	41764
1-1/2	1-1/4	4	6	6-1/2	AL48-8	42120	42121	42140
1-1/2	1-1/4	4	4	6-1/2	AL48-8A	41744	41745	41766
1-1/2	1-1/4	6	6	8-1/2	ALX48-8	42122	42123	42142
1-3/4	1-1/4	4	6	6-1/2	AL56-8	42124	42125	42144
2	1-1/4	4	6	6-1/2	AL64-8	42126	42127	42146
2	1-1/4	4	8	6-1/2	AL64-8A	42342	42343	42360

COMBINATION SHANKS

2	2	6	4	9-3/4	AL64-11A	41746	41747	41768
2	2	6	6	9-3/4	AL64-11	42128	42129	42148
2-1/2	2	6	4	9-3/4	AL80-11A	41748		
2-1/2	2	6	6	9-3/4	AL80-11	42130		

Combination Shank

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

4 Flutes or more

Extra Long Length Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001
  – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/4	3/8	1-3/4	4	3-9/16	CoA8-2B	44410	44411	44444
5/16	3/8	2	4	3-3/4	CoA10-2B	44412	44413	44446
3/8	3/8	2-1/2	4	4-1/4	CoA12-2B	44414	44415	44448

Extra Long Length, Right Hand Four or Six Flute, Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance: 1/2" is + .001
  – .000
  Over 1/2" is + .003
  – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	3	4	5	CoAC16-3B	44316	44317	44332
1/2	1/2	4	4	6	CoAC16-3C	44416	44417	44430
5/8	5/8	4	4	6-1/8	CoAC20-4B	44418	44419	44432
5/8	5/8	3	4	5-1/8	CoAC20-4C	44318	44319	44334
3/4	3/4	4	4	6-1/4	CoAC24-5B	44420	44421	44434
3/4	3/4	3	4	5-1/4	CoAC24-5C	44320	44321	44336
3/4	3/4	4	6	6-1/4	CoKC24-5B	44840	44841	44850
3/4	3/4	3	6	5-1/4	CoKC24-5C	44740	44741	44754
7/8	7/8	3-1/2	4	5-3/4	CoAC28-6A	44322	44323	44338
7/8	7/8	5	4	7-1/4	CoAC28-6B	44422	44423	44436
1	1	4	4	6-1/2	CoAC32-7A	44324	44325	44340
1	1	6	4	8-1/2	CoAC32-7B	44424	44425	44438
1	1	4	6	6-1/2	CoKC32-7A	44742	44743	44756
1	1	6	6	8-1/2	CoKC32-7B	44842	44843	44852
1-1/4	1-1/4	4	4	6-1/2	CoAC40-8A	44326	44327	44342
1-1/4	1-1/4	6	4	8-1/2	CoAC40-8B	44426	44927	44440
1-1/4	1-1/4	4	6	6-1/2	CoKC40-8A	44744	44745	44758
1-1/4	1-1/4	6	6	8-1/2	CoKC40-8B	44844	44845	44854
1-1/2	1-1/4	4	4	6-1/2	CoAC48-8A	44328	44329	44344
1-1/2	1-1/4	6	4	8-1/2	CoAC48-8B	44428	44429	44442
1-1/2	1-1/4	4	6	6-1/2	CoKC48-8A	44746	44747	44760
1-1/2	1-1/4	6	6	8-1/2	CoKC48-8B	44846	44847	44856
2	1-1/4	4	4	6-1/2	CoAC64-8A	44330	44331	44346
2	1-1/4	4	6	6-1/2	CoKC64-8A	44748	44749	44762

High Speed Steel, Non-Center Cutting

- Cutting Diameter Tolerance is + .003
  – .000

Two screw drive on 7/8" shanks and larger

1/2	1/2	3	4	5	AE16-3	41830	41831	41840
5/8	5/8	4	4	6-1/8	AE20-4	41832	41833	41842
3/4	3/4	4	4	6-1/4	AE24-5	41834	41835	41844
7/8	7/8	5	4	7-1/4	AE28-6	41836	41837	41846
1	1	6	4	8-1/2	AE32-7	41838	41839	41848
1-1/4	1-1/4	6	6	8-1/2	AE40-8	42210	42211	42228
1-1/2	1-1/4	8	6	10-1/2	AE48-8	42212	42213	42230
3	2-1/2	6	6	9-3/4	AY96-14A	42220		
3	2-1/2	8	6	11-3/4	AY96-14B	42222		
3	2-1/2	10	6	13-3/4	AY96-14C	42224		
3	2-1/2	12	6	15-3/4	AY96-14D	42226		

COMBINATION SHANKS

2	2	8	6	11-3/4	AE64-11	42214	42215	42232
2	2	10	6	13-3/4	AEX64-11	42216		
2-1/2	2	8	6	11-3/4	AE80-11	42218		

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

4 Flutes or more

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
2	2	2	6	5-3/4	CoKC64-10D	44552	44553	44566
2	2	3	6	6.3/4	CoKC64-10C	44648	44649	44658
2	2	4	6	7-3/4	CoKC64-10	44750	44751	44764
2	2	6	6	9-3/4	CoKC64-10A	44848	44849	44858

Heavy Duty, Right Hand Six Flute, Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .003 – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
3/16	3/8	1/2	4	2-3/8	CoA6-2FC	44910	44911	44918
1/4	3/8	5/8	4	2-1/2	CoA8-2FC	44912	44913	44920
5/16	3/8	3/4	4	2-1/2	CoA10-2FC	44914	44915	44922
3/8	3/8	3/4	4	2-1/2	CoA12-2FC	44916	44917	44924

Regular Length, Single-End .001 to .0015 Over Basic Diameter

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

End Mills • General Purpose

4 Flutes

Stub Length, Single-End
with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001
  – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/16	4	2-1/8	CoAS4-2	44010	44011	44016
3/16	3/8	9/32	4	2-3/16	CoAS6-2	44012	44013	44018
1/4	3/8	3/8	4	2-1/4	CoAS8-2	44014	44015	44020

Short Length, Single-End
Plain Shank
R.H. Cut, R.H. Helix
Shank Diameter same as Flute Diameter

High Speed Steel, Non-Center Cutting
- Cutting Diameter Tolerance is + .003
  – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	1/8	5/16	4	1-1/4	ASF4	41410	41411	41434
5/32	5/32	5/16	4	1-1/4	ASF5	41412	41413	41436
3/16	3/16	1/2	4	1-3/8	ASF6	41414	41415	41438
7/32	7/32	9/16	4	1-5/8	ASF7	41416	41417	41440
1/4	1/4	5/8	4	1-11/16	ASF8	41418	41419	41442
5/16	5/16	11/16	4	1-3/4	ASF10	41420	41421	41444
3/8	3/8	3/4	4	1-13/16	ASF12	41422	41423	41446
7/16	7/16	7/8	4	2-3/16	ASF14	41424	41425	41448
1/2	1/2	15/16	4	2-1/4	ASF16	41426	41427	41450
9/16	9/16	1	4	2-5/16	ASF18	41428	41429	41452
5/8	5/8	1-1/8	4	2-1/2	ASF20	41430	41431	41454
3/4	3/4	1-1/4	4	2-5/8	ASF24	41432	41433	41456

4 Flutes Center Cutting

Regular Length, Double-End
with WELDON Shank
R.H. Cut, R.H. Helix

Double End style offers added economy with two cutting ends on a single shank

High Speed Steel, Center Cutting
- Cutting Diameter Tolerance is + .0000
  – .0025

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	1	4	4-1/8	AAC16-3	43040	49902	49502
5/8	5/8	1-3/8	4	5	AAC20-4	43042	49904	49504
3/4	3/4	1-5/8	4	5-5/8	AAC24-5	43044	49906	49506
7/8	7/8	1-7/8	4	6-1/8	AAC28-6	43046	43047	41504
1	1	1-7/8	4	6-3/8	AAC32-7	43048	49908	49508

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Center Cutting 4 Flutes

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	1-1/4	4	3-1/4	AC16-3	42640	49702	42662
5/8	5/8	1-5/8	4	3-3/4	AC20-4	42642	49704	42664
11/16	5/8	1-5/8	4	3-3/4	AC22-4	42644	42645	42666
3/4	3/4	1-5/8	4	3-7/8	AC24-5	42646	49706	42668
7/8	7/8	1-7/8	4	4-1/8	AC28-6	42648	42649	42670
1	1	2	4	4-1/2	AC32-7	42650	49708	42672
1	1	3	4	5-1/2	AC32-7C	42740	42741	42746
1-1/8	1	2	4	4-1/2	AC36-7	42652	42653	42674
1-1/4	1-1/4	2	4	4-1/2	AC40-8	42654	42655	42676
1-1/4	1-1/4	3	4	5-1/2	AC40-8C	42742	42743	42748
1-1/2	1-1/4	2	4	4-1/2	AC48-8	42656	42657	42678
1-3/4	1-1/4	2	4	4-1/2	AC56-8	42658	42659	42680
2	1-1/4	2	4	4-1/2	AC64-8	42660	42661	42682
COMBINATION SHANKS								
2	2	3	4	6-3/4	AC64-11A	42744	42745	42750

Regular Length, Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

High Speed Steel, Center Cutting

- Cutting Diameter Tolerance is + .003
  – .000

Two screw drive on 7/8" shanks and larger

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

End Mills • General Purpose

4 Flutes Center Cutting

Long Length, Single-End
with WELDON Shank
R.H. Cut, R.H. Helix

High Speed Steel, Center Cutting
• Cutting Diameter Tolerance is + .003
– .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	2	4	4	AC16-3A	42840	42841	42862
5/8	5/8	2-1/2	4	4-5/8	AC20-4A	42842	42843	42864
3/4	3/4	3	4	5-1/4	AC24-5A	42844	42845	42866
7/8	7/8	3-1/2	4	5-3/4	AC28-6A	42846	42847	42868
1	1	4	4	6-1/2	AC32-7A	42848	42849	42870
1-1/4	1-1/4	4	4	6-1/2	AC40-8A	42850	42851	42872
1-1/2	1-1/4	4	4	6-1/2	AC48-8A	42852	42853	42874
1-3/4	1-1/4	4	4	6-1/2	AC56-8A	42854	42855	42876
2	1-1/4	4	4	6-1/2	AC64-8A	42856	42857	42878

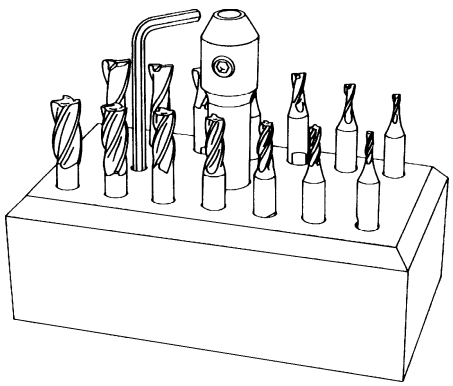
Extra Long Length, Single-End
with WELDON Shank
R.H. Cut, R.H. Helix

High Speed Steel, Center Cutting
• Cutting Diameter Tolerance is + .003
– .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	3	4	5	AC16-3B	42940	42941	42962
5/8	5/8	4	4	6-1/8	AC20-4B	42942	42943	42964
3/4	3/4	4	4	6-1/4	AC24-5B	42944	42945	42966
7/8	7/8	5	4	7-1/4	AC28-6B	42946	42947	42968
1	1	6	4	8-1/2	AC32-7B	42948	42949	42970
1-1/4	1-1/4	6	4	8-1/2	AC40-8B	42950	42951	42972
1-1/2	1-1/4	8	4	10-1/2	AC48-8B	42952	42953	42974
3	2-1/2	6	4	9-3/4	AC96-14A	42954		
3	2-1/2	8	4	11-3/4	AC96-14B	42956		
3	2-1/2	10	4	13-3/4	AC96-14C	42958		
3	2-1/2	12	4	15-3/4	AC96-14D	42960		

Tool Room End Mill Set
No. 1A - EDP No. 99010
This set of end mills is especially prepared for the tool room and consists of one each of the end mills listed.



TWO FLUTES

Double End					Single End				
Diameter of Mill	Part No.	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.	Diameter of Mill	Part No.	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	CoBB4-2	29002	29802	29402	7/16	CoB14-2	28222	28223	28264
3/16	CoBB6-2	29010	29804	29404	1/2	*B16-2	25302	25303	25300
1/4	CoBB8-2	29018	29806	29406					
5/16	CoBB10-2	29026	29808	29408					
3/8	CoBB12-2	29034	29810	29410					

FOUR FLUTES

Double End					Single End				
Diameter of Mill	Part No.	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.	Diameter of Mill	Part No.	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	CoAA4-2	45910	49802	49402	7/16	CoA14-2	44130	44131	44184
3/16	CoAA6-2	45918	49804	49404	1/2	*A16-2	41530	41531	41502
1/4	CoAA8-2	45926	49806	49406					
5/16	CoAA10-2	46006	49808	49408					
3/8	CoAA12-2	46014	49810	49410					

All above mills have 3/8" shanks. Set also includes one Weldon Holder No. BR-2 for Bridgeport R-8 Spindle unless otherwise specified.

• Premium 8% COBALT Steel

* High Speed Steel

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

2 Flutes *Ball Style*

Weldon Ball-End End Mills are used in a wide variety of applications including die sinking and fillet forming. An added feature found in all Weldon Two Flute Ball-End End Mills 1/2" diameter and larger, is a **Tapered Web construction which affords more chip room in the flutes.** A smoother blending of the flute face at the point where the radius of the ball joins the straight diameter eliminates the usual area of premature cutting edge failure common in other Ball-End tools. **The Tapered Web design also affords easier and faster resharpening** since less stock removal is required when carrying back the ball form. Premium 8% Cobalt High Speed Steel End Mills maintain high red hardness and are resistant to wear. Used primarily in the aerospace and related industries, these end mills are especially made for machining high strength, heat resistant exotic metals that are beyond the cutting capabilities of conventional high speed end mills. Weldon's new *UniLead*® precision manufactured leads on end mills 1/2" cutting diameter and larger.

Regular Length Two Flute, Double-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	2	3-1/16	CoRR4-2	27910	27911	27944
9/64	3/8	7/16	2	3-1/8	CoRR141-2	27912	27913	27946
5/32	3/8	7/16	2	3-1/8	CoRR5-2	27914	27915	27948
11/64	3/8	7/16	2	3-1/8	CoRR172-2	27916	27917	27950
3/16	3/8	7/16	2	3-1/8	CoRR6-2	27918	27919	27952
13/64	3/8	1/2	2	3-1/8	CoRR203-2	27920	27921	27954
7/32	3/8	1/2	2	3-1/8	CoRR7-2	27922	27923	27956
15/64	3/8	1/2	2	3-1/8	CoRR234-2	27924	27925	27958
1/4	3/8	1/2	2	3-1/8	CoRR8-2	27926	27927	27960
17/64	3/8	9/16	2	3-1/8	CoRR266-2	27928	27929	27962
9/32	3/8	9/16	2	3-1/8	CoRR9-2	27930	27931	27964
19/64	3/8	9/16	2	3-1/8	CoRR297-2	27932	27933	27966
5/16	3/8	9/16	2	3-1/8	CoRR10-2	27934	27935	27968
21/64	3/8	9/16	2	3-1/8	CoRR328-2	27936	27937	27970
11/32	3/8	9/16	2	3-1/8	CoRR11-2	27938	27939	27972
23/64	3/8	9/16	2	3-1/8	CoRR359-2	27940	27941	27974
3/8	3/8	9/16	2	3-1/8	CoRR12-2	27942	27943	27976

High Speed Steel

- Cutting Diameter Tolerance is + .0000 – .0015

7/16	1/2	13/16	2	3-3/4	RR14-3	27240	27241	27252
1/2	1/2	13/16	2	3-3/4	RR16-3	27242	27243	27254
5/8	5/8	1-1/8	2	4-9/16	RR20-4	27244	27245	27256
3/4	3/4	1-5/16	2	5	RR24-5	27246	27247	27258
7/8	7/8	1-9/16	2	5-1/2	RR28-6	27248	27249	27260
1	1	1-5/8	2	5-7/8	RR32-7	27250	27251	27262

Regular Length Two Flute, Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance :
  Under 1/2" is + .001 – .000
  1/2" and Over + .003 – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	2	2-5/16	CoR4-2	27602	27603	27634
5/32	3/8	7/16	2	2-5/16	CoR5-2	27604	27605	27636
3/16	3/8	1/2	2	2-3/8	CoR6-2	27606	27607	27638
7/32	3/8	1/2	2	2-5/16	CoR7-2	27608	27609	27640
1/4	3/8	5/8	2	2-7/16	CoR8-2	27610	27611	27642
9/32	3/8	9/16	2	2-5/16	CoR9-2	27612	27613	27644
5/16	3/8	3/4	2	2-1/2	CoR10-2	27614	27615	27646
11/32	3/8	9/16	2	2-5/16	CoR11-2	27616	27617	27648
3/8	3/8	3/4	2	2-1/2	CoR12-2	27618	27619	27650
13/32	3/8	13/16	2	2-1/2	CoR13-2	27620	27621	27652
7/16	3/8	13/16	2	2-1/2	CoR14-2	27622	27623	27654
1/2	1/2	1	2	3	CoR16-3	27624	27625	27656
5/8	5/8	1-3/8	2	3-1/2	CoR20-4	27626	27627	27658
3/4	3/4	1-5/8	2	3-7/8	CoR24-5	27628	27629	27660
1	1	2-1/4	2	4-3/4	CoR32-7	27630	27631	27662
1-1/4	1-1/4	2-1/2	2	5	CoR40-8	27632	27633	27664

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

2 and 4 Flutes *Ball Style*

Regular Length, Two and Four Flute, Single-End (continued)

with WELDON Shank
R.H. Cut, R.H. Helix

High Speed Steel

- Cutting Diameter Tolerance is + .003 – .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
7/16	1/2	1	2	3	R14-3	27040	27041	27000
1/2	1/2	1	2	3	R16-3	27042	27043	27002
9/16	1/2	1	2	3	R18-3	27044	27045	27004
5/8	1/2	1-3/8	2	3-3/8	R20-3	27046	27047	27006
3/4	1/2	1-5/8	2	3-5/8	R24-3	27050	27051	27010
5/8	5/8	1-3/8	2	3-1/2	R20-4	27048	27049	27008
3/4	3/4	1-5/8	2	3-7/8	R24-5	27052	27053	27012
13/16	3/4	2	2	4-1/4	R26-5	27054	27055	27014
7/8	3/4	2	2	4-1/4	R28-5	27056	27057	27016
15/16	3/4	2-1/4	2	4-1/2	R30-5	27060	27061	27020
1	3/4	2-1/4	2	4-1/2	R32-5	27062	27063	27022
7/8	7/8	2	2	4-1/4	R28-6	27058	27059	27018
1	1	2-1/4	2	4-3/4	R32-7	27064	27065	27024
1-1/8	1	2-1/4	2	4-3/4	R36-7	27066	27067	27026
1-1/4	1-1/4	2-1/2	2	5	R40-8	27068	27069	27028
1-3/8	1-1/4	2-1/2	2	5	R44-8	27070	27071	27030
1-1/2	1-1/4	2-1/2	2	5	R48-8	27072	27073	27032

COMBINATION SHANKS
4 Flutes

2	2	5	4	8-3/4	R64-11	47188	47189	27033
2-1/2	2	5	4	8-3/4	R80-11	47190	47191	27034

Extended Length Two Flute, Single-End

R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

Diameter of Mill	Diameter of Shank	Length Below Shank	Length of Cut	Number of Flutes	Overall Length	Part No.	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	13/16	3/8	2	2-3/8	CoRL4-2	27702	27703	27712
3/16	3/8	1-1/8	1/2	2	2-11/16	CoRL6-2	27704	27705	27714
1/4	3/8	1-1/2	5/8	2	3-1/16	CoRL8-2	27706	27707	27716
5/16	3/8	1-3/4	3/4	2	3-5/16	CoRL10-2	27708	27709	27718
3/8	3/8	1-3/4	3/4	2	3-5/16	CoRL12-2	27710	27711	27720

High Speed Steel

- Cutting Diameter Tolerance is + .003 – .000

Two screw drive on 7/8" shanks and larger

7/16	1/2	1-7/8	1	2	3-11/16	RL14-3	27140	27141	27154
1/2	1/2	2-1/4	1	2	4	RL16-3	27142	27143	27156
5/8	5/8	2-3/4	1-3/8	2	4-5/8	RL20-4	27144	27145	27158
3/4	3/4	3-3/8	1-5/8	2	5-3/8	RL24-5	27146	27147	27160
7/8	7/8	4	2	2	6	RL28-6	27148	27149	27162
1	1	5	2-1/2	2	7-1/4	RL32-7	27150	27151	27164
1-1/4	1-1/4	5	3	2	7-1/4	RL40-8	27152	27153	27166

Stub Length Two Flute, Double-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/16	2	2-11/16	CoRSR4-2	27830	27831	27836
3/16	3/8	9/32	2	2-3/4	CoRSR6-2	27832	27833	27838
1/4	3/8	3/8	2	2-7/8	CoRSR8-2	27834	27835	27840

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

2 Flutes *Ball Style*

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/32	3/16	3/64	2	2	CoXSR1-1	27310	27311	27332
3/64	3/16	1/16	2	2	CoXSR-047	27312	27313	27334
1/16	3/16	3/32	2	2	CoXSR2-1	27314	27315	27336
5/64	3/16	1/8	2	2	CoXSR-078	27316	27317	27338
3/32	3/16	9/64	2	2	CoXSR3-1	27318	27319	27340
7/64	3/16	5/32	2	2	CoXSR-109	27320	27321	27342
1/8	3/16	3/16	2	2	CoXSR4-1	27322	27323	27344
9/64	3/16	7/32	2	2	CoXSR-141	27324	27325	27346
5/32	3/16	15/64	2	2	CoXSR5-1	27326	27327	27348
11/64	3/16	1/4	2	2	CoXSR-172	27328	27329	27350
3/16	3/16	9/32	2	2	CoXSR6-1	27330	27331	27352

Stub Length
Small Diameter, 3/16" Dia. Shank
Two Flute, Double-End

R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/32	3/16	3/32	2	2-1/4	CoXR1-1	27410	27411	27432
3/64	3/16	9/64	2	2-1/4	CoXR-047	27412	27413	27434
1/16	3/16	7/32	2	2-1/4	CoXR2-1	27414	27415	27436
5/64	3/16	15/64	2	2-1/4	CoXR-078	27416	27417	27438
3/32	3/16	5/16	2	2-1/4	CoXR3-1	27418	27419	27440
7/64	3/16	21/64	2	2-1/4	CoXR-109	27420	27421	27442
1/8	3/16	3/8	2	2-1/4	CoXR4-1	27422	27423	27444
9/64	3/16	13/32	2	2-1/4	CoXR-141	27424	27425	27446
5/32	3/16	7/16	2	2-1/4	CoXR5-1	27426	27427	27448
11/64	3/16	1/2	2	2-1/4	CoXR-172	27428	27429	27450
3/16	3/16	1/2	2	2-1/4	CoXR6-1	27430	27431	27452

Regular Length
Small Diameter, 3/16" Dia. Shank
Two Flute, Double-End

R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .000 – .001

Diameter of Mill	Diameter of Shank	Length Below Shank	Length of Cut	Number of Flutes	Overall Length	Part No.	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/16	3/16	3/8	7/32	2	2-1/2	CoXER2-1	27510	27511	27520
3/32	3/16	1/2	9/32	2	2-5/8	CoXER3-1	27512	27513	27522
1/8	3/16	3/4	3/4	2	3-1/8	CoXER4-1	27514	27515	27524
5/32	3/16	7/8	7/8	2	3-1/4	CoXER5-1	27516	27517	27526
3/16	3/16	1	1	2	3-3/8	CoXER6-1	27518	27519	27528

Long Length
Small Diameter, 3/16" Dia. Shank
Two Flute, Double-End

R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001 – .000

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

4 and 6 Flutes *Ball Style*

Weldon's Ball End Mills 1/2" in diameter and larger with four or more flutes feature a constant changing rake angle in the ball portion of the end mill. This modern design provides maximum strength in the tool and is **most suitable for plunging and increased feeds in difficult to machine materials.** Premium 8% Cobalt High Speed Steel End Mills **maintain high red hardness and are resistant to wear.** Used primarily in the aerospace and related industries, these end mills are especially made for machining high strength, heat resistant exotic metals that are beyond the cutting capabilities of conventional high speed end mills. Weldon's new *UniLead*® precision manufactured leads on end mills 1/2" cutting diameter and larger.

Stub Length
Small Diameter, 3/16" Dia. Shank
Double-End

R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001
  – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/16	3/16	3/32	4	2	CoWSR2-1	47310	47311	47320
3/32	3/16	9/64	4	2	CoWSR3-1	47312	47313	47322
1/8	3/16	3/16	4	2	CoWSR4-1	47314	47315	47324
5/32	3/16	15/64	4	2	CoWSR5-1	47316	47317	47326
3/16	3/16	9/32	4	2	CoWSR6-1	47318	47319	47328

Regular Length
Small Diameter, 3/16" Dia. Shank
Double-End

R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance is + .001
  – .000

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/16	3/16	3/16	4	2-1/4	CoWR2-1	47410	47411	47420
3/32	3/16	9/32	4	2-1/4	CoWR3-1	47412	47413	47422
1/8	3/16	3/8	4	2-1/4	CoWR4-1	47414	47415	47424
5/32	3/16	7/16	4	2-1/4	CoWR5-1	47416	47417	47426
3/16	3/16	1/2	4	2-1/4	CoWR6-1	47418	47419	47428

4 Flute
Single-End

with WELDON Shank
R.H. Cut, R.H. Helix

- Premium 8% Cobalt Steel
- Center Cutting End Design
- Cutting Diameter Tolerance :
  Under 1/2" is + .001
  – .000
  1/2" and Over + .003
  – .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/8	3/8	3/8	4	2-5/16	CoRK4-2	47510	47511	47565
5/32	3/8	1/2	4	2-3/8	CoRK5-2	47512	47513	47566
3/16	3/8	1/2	4	2-3/8	CoRK6-2	47514	47515	47567
7/32	3/8	5/8	4	2-7/16	CoRK7-2	47516	47517	47568
1/4	3/8	5/8	4	2-7/16	CoRK8-2	47518	47519	47569
1/4	3/8	1	4	2-13/16	CoRK8-2A	47520	47521	47570
1/4	3/8	1-1/4	4	3-1/16	CoRK8-2B	47522	47523	47571
1/4	3/8	1-1/2	4	3-5/16	CoRK8-2C	47524	47525	47572
9/32	3/8	3/4	4	2-1/2	CoRK9-2	47526	47527	47573
5/16	3/8	3/4	4	2-1/2	CoRK10-2	47528	47529	47574
5/16	3/8	1	4	2-3/4	CoRK10-2A	47530	47531	47575
5/16	3/8	1-1/2	4	3-1/4	CoRK10-2C	47532	47533	47576
11/32	3/8	3/4	4	2-1/2	CoRK11-2	47534	47535	47577
3/8	3/8	3/4	4	2-1/2	CoRK12-2	47536	47537	47578
3/8	3/8	1	4	2-3/4	CoRK12-2A	47538	47539	47580
3/8	3/8	1-1/2	4	3-1/4	CoRK12-2B	47540	47541	47579
3/8	3/8	2	4	3-3/4	CoRK12-2C	47542	47543	47581
3/8	3/8	2-1/2	4	4-1/4	CoRK12-2D	47544	47545	47582
13/32	3/8	1	4	2-11/16	CoRK13-2	47546	47547	47583
7/16	3/8	1	4	2-11/16	CoRK14-2	47548	47549	47584
1/2	1/2	1-1/4	4	3-1/4	CoAR16-3	47550	47551	47558
5/8	5/8	1-5/8	4	3-3/4	CoAR20-4	47552	47553	47560
3/4	3/4	1-5/8	4	3-7/8	CoAR24-5	47554	47555	47562
1	1	2	4	4-1/2	CoAR32-7	47556	47557	47564

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

4 and 6 Flutes *Ball Style*

4 - 6 Flute, Single-End (continued)

with WELDON Shank
R.H. Cut, R.H. Helix

High Speed Steel

• Cutting Diameter Tolerance is + .003
– .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	1	4	3	RK16-3	47130	47131	47100
1/2	1/2	1-1/2	4	3-1/2	RK16-3A	47132	47133	47101
1/2	1/2	2	4	4	RK16-3B	47134	47135	47102
1/2	1/2	2-1/2	4	4-1/2	RK16-3C	47136	47137	47103
1/2	1/2	3	4	5	RK16-3D	47138	47139	47104
5/8	5/8	1-1/4	4	3-3/8	RK20-4	47140	47141	47105
5/8	5/8	1-3/4	4	3-7/8	RK20-4A	47142	47143	47106
5/8	5/8	2-1/2	4	4-5/8	RK20-4B	47144	47145	47107
5/8	5/8	3	4	5-1/8	RK20-4C	47146	47147	47108
5/8	5/8	3-3/4	4	5-7/8	RK20-4D	47148	47149	47109
3/4	3/4	1-1/2	4	3-3/4	RK24-5	47150	47151	47110
3/4	3/4	2-1/4	4	4-1/2	RK24-5A	47152	47153	47111
3/4	3/4	3	4	5-1/4	RK24-5B	47154	47155	47112
3/4	3/4	3-3/4	4	6	RK24-5C	47156	47157	47113
3/4	3/4	4-1/2	4	6-3/4	RK24-5D	47158	47159	47114
7/8	7/8	1-7/8	4	4-1/8	RK28-6A	47160	47161	47115
1	1	2	4	4-1/2	RK32-7	47162	47163	47116
1	1	3	4	5-1/2	RK32-7A	47164	47165	47118
1	1	4	4	6-1/2	RK32-7B	47166	47167	47120
1	1	5	4	7-1/2	RK32-7C	47168	47169	47122
1	1	6	4	8-1/2	RK32-7D	47170	47171	47124
1-1/4	1-1/4	2	4	4-1/2	RK40-8	47172	47173	47126
1-1/4	1-1/4	3	4	5-1/2	RK40-8A	47174	47175	47128
1-1/4	1-1/4	4	4	6-1/2	RKX40-8A	47176	47177	47280
1-1/4	1-1/4	4-1/2	4	7	RKA40-8B	47178	47179	47192
1-1/4	1-1/4	6	4	8-1/2	RKA40-8C	47180	47181	47194
1-1/2	1-1/4	2	4	4-1/2	RKA48-8	47182	47183	47196
1-1/2	1-1/4	4	4	6-1/2	RKA48-8A	47184	47185	47198
1-1/2	1-1/4	6	4	8-1/2	RKA48-8B	47186	47187	47200
6 Flutes								
1-1/4	1-1/4	4-1/2	6	7	RK40-8B	47240	47241	47260
1-1/4	1-1/4	6	6	8-1/2	RK40-8C	47242	47243	47262
1-1/2	1-1/4	2	6	4-1/2	RK48-8	47244	47245	47264
1-1/2	1-1/4	4	6	6-1/2	RK48-8A	47246	47247	47266
1-1/2	1-1/4	6	6	8-1/2	RK48-8B	47248	47249	47268
COMBINATION SHANKS								
2	2	4	6	7-3/4	RK64-11A	47250	47251	47270
2	2	6	6	9-3/4	RK64-11B	47252	47253	47272
2	2	8	6	11-3/4	RK64-11C	47254	47255	47274
2-1/2	2	4	6	7-3/4	RK80-11	47256	47257	47276
2-1/2	2	6	6	9-3/4	RK80-11A	47258	47259	47278

Combination Shank

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

End Mills

SPECIAL PURPOSE

45 **CREST-KUT®**
Rough and finish in one operation. Minimum vibration chatter and chip recutting.

50 **SKI-KUT®**
High speed steel end mills for milling aluminum. Chips are lifted and thrown clear of the workpiece which reduced chip recutting galling and flute clogging.

52 **SKI-CARB®**
Solid Carbide end mills for milling aluminum. Maximum spindle speeds possible with increase feed rates.

54 **TAPERED MILLS**
Assures freer and faster cutting. Improves resistance to both operating side thrusts and deflections due to constant helix geometry.

57 **BULLDOG®**
Sinusoidal chipbreakers form which produce small chips that allow faster feed rates. Designed to machine most materials of medium hardness.

2 and 3 Flutes for Aluminum

Rough and finish in one operation. Made from high speed steel, Crest-Kut® end mills offer the following benefits:

- Minimum Vibration and Chatter
- Efficient Distribution of Cutting Temperatures
- Compensating Cutting Forces
- Minimum Chip Recutting
- Maximum Cutting Edge Life
- Faster Cutting
- Longer Tool Life
- Reduced Machine Down Time
- Easily Resharpened
- Greater Productivity and Higher Profits

Single-End, Two Flute *Center Cutting*

with WELDON Shank
R.H. Cut, R.H. Helix
Two screw drive on 7/8" shanks and larger

High Speed Steel

Cutting Diameter Tolerance is + .003 – .003

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	1-1/4	2	3-1/4	KB16-3	65602	65644	65603
1/2	1/2	2	2	4	KB16-3A	65604	65645	65605
1/2	1/2	3	2	5	KB16-3B	65606	65646	65607
5/8	5/8	1-5/8	2	3-3/4	KB20-4	65608	65647	65609
5/8	5/8	2-1/2	2	4-5/8	KB20-4A	65610	65648	65611
5/8	5/8	4	2	6-1/8	KB20-4B	65612	65649	65613
3/4	3/4	1-5/8	2	3-7/8	KB24-5	65614	65650	65615
3/4	3/4	3	2	5-1/4	KB24-5A	65616	65651	65617
3/4	3/4	4	2	6-1/4	KB24-5B	65618	65652	65619
1	1	2	2	4-1/2	KB32-7	65620	65653	65621
1	1	4	2	6-1/2	KB32-7B	65622	65654	65623
1	1	6	2	8-1/2	KB32-7D	65624	65655	65625
1-1/4	1-1/4	2	2	4-1/2	KB40-8	65626	65656	65627
1-1/4	1-1/4	4	2	6-1/2	KB40-8B	65628	65657	65629
1-1/4	1-1/4	6	2	8-1/2	KB40-8D	65630	65658	65631
1-1/2	1-1/4	2	2	4-1/2	KB48-8	65632	65659	65633
1-1/2	1-1/4	4	2	6-1/2	KB48-8B	65634	65660	65635
1-1/2	1-1/4	6	2	8-1/2	KB48-8D	65636	65661	65637

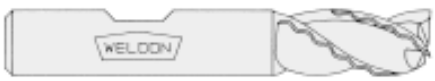
COMBINATION SHANKS

2	2	4	2	7-3/4	KB64-11B	65638	65662	65639
2	2	6	2	9-3/4	KB64-11C	65640	65663	65641
2	2	8	2	11-3/4	KB64-11D	65642	65664	65643

Combination Shank

Single-End, Three Flute *Center Cutting*

with WELDON Shank
R.H. Cut, R.H. Helix
Two screw drive on 7/8" shanks and larger



High Speed Steel

Cutting Diameter Tolerance is + .003 – .003

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	1-1/4	3	3-1/4	KC16-3	65702	65754	65703
1/2	1/2	2	3	4	KC16-3A	65704	65755	65705
1/2	1/2	3	3	5	KC16-3B	65706	65756	65707
5/8	5/8	1-5/8	3	3-3/4	KC20-4	65708	65757	65709
5/8	5/8	2-1/2	3	4-5/8	KC20-4A	65710	65758	65711
5/8	5/8	4	3	6-1/8	KC20-4B	65712	65759	65713
3/4	3/4	1-5/8	3	3-7/8	KC24-5	65714	65760	65715
3/4	3/4	3	3	5-1/4	KC24-5A	65716	65761	65717
3/4	3/4	4	3	6-1/4	KC24-5B	65718	65762	65719
1	1	2	3	4-1/2	KC32-7	65720	65763	65721
1	1	3	3	5-1/2	KC32-7C	65722	65764	65727
1	1	4	3	6-1/2	KC32-7A	65724	65765	65723
1	1	6	3	8-1/2	KC32-7B	65726	65766	65725
1-1/4	1-1/4	2	3	4-1/2	KC40-8	65728	65767	65729
1-1/4	1-1/4	3	3	5-1/2	KC40-8C	65730	65768	65731
1-1/4	1-1/4	4	3	6-1/2	KC40-8A	65732	65769	65733
1-1/4	1-1/4	6	3	8-1/2	KC40-8B	65734	65770	65735
1-1/2	1-1/4	2	3	4-1/2	KC48-8	65736	65771	65737
1-1/2	1-1/4	3	3	5-1/2	KC48-8C	65738	65772	65739
1-1/2	1-1/4	4	3	6-1/2	KC48-8A	65742	65774	65743
1-1/2	1-1/4	6	3	8-1/2	KC48-8B	65744	65775	65745
1-1/2	1-1/2	3	3	5-7/8	KC48-9C	65740	65773	65741

COMBINATION SHANKS

2	2	3	3	6-3/4	KC64-11A	65746	65776	65747
2	2	4	3	7-3/4	KC64-11B	65748	65777	65749
2	2	6	3	9-3/4	KC64-11C	65750	65778	65751
2	2	8	3	11-3/4	KC64-11D	65752	65779	65753

Combination Shank

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

Multi-Flute, Non-Center Cutting

Single-End *Non-Center Cutting*

with WELDON Shank
R.H. Cut, R.H. Helix
Two screw drive on 7/8" shanks and larger

High Speed Steel
Cutting Diameter + .003
Tolerance is – .003

Diameter of Mill	Diameter of Shank	Length of Cut	No. of Flutes	Overall Length	Part No.	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
4 Flutes								
3/8	3/8	3/4	4	2-1/2	KA12-2	65802	65801	65803
3/8	3/8	1-3/8	4	3-1/8	KA12-2A	65804	65852	65805
1/2	1/2	1-1/4	4	3-1/4	KA16-3	65806	65853	65807
1/2	1/2	2	4	4	KA16-3A	65808	65854	65809
1/2	1/2	3	4	5	KA16-3B	65810	65855	65811
5/8	5/8	1-5/8	4	3-3/4	KA20-4	65812	65856	65813
5/8	5/8	2-1/2	4	4-5/8	KA20-4A	65814	65857	65815
5/8	5/8	4	4	6-1/8	KA20-4B	65816	65858	65817
3/4	3/4	1-5/8	4	3-7/8	KA24-5	65818	65859	65819
3/4	3/4	3	4	5-1/4	KA24-5A	65820	65860	65821
3/4	3/4	4	4	6-1/4	KA24-5B	65822	65861	65823
7/8	3/4	1-7/8	4	4-1/8	KA28-5	65824	65862	65825
1	3/4	1-7/8	4	4-1/8	KA32-5	65826	65863	65827
1	1	2	4	4-1/2	KAF32-7	65828	65864	65829
1	1	4	4	6-1/2	KAF32-7B	65830	65865	65831
1	1	6	4	8-1/2	KAF32-7D	65832	65866	65833
1-1/4	1-1/4	2	4	4-1/2	KAF40-8	65834	65867	65835
1-1/4	1-1/4	4	4	6-1/2	KAF40-8B	65836	65868	65837
1-1/4	1-1/4	6	4	8-1/2	KAF40-8D	65838	65869	65839
1-1/2	1-1/4	2	4	4-1/2	KAF48-8	65840	65870	65841
1-1/2	1-1/4	4	4	6-1/2	KAF48-8B	65842	65871	65843
1-1/2	1-1/4	6	4	8-1/2	KAF48-8D	65844	65872	65845
6 Flutes								
1	1	2	6	4-1/2	KA32-7	65902	65901	65903
1	1	3	6	5-1/2	KA32-7A	65904	65942	65905
1	1	4	6	6-1/2	KA32-7B	65906	65943	65907
1	1	6	6	8-1/2	KA32-7D	65908	65944	65909
1-1/4	3/4	2	6	4-1/4	KA40-5	65910	65945	65911
1-1/4	1-1/4	2	6	4-1/2	KA40-8	65912	65946	65913
1-1/4	1-1/4	3	6	5-1/2	KA40-8A	65914	65947	65915
1-1/4	1-1/4	4	6	6-1/2	KA40-8B	65916	65948	65917
1-1/4	1-1/4	6	6	8-1/2	KA40-8D	65918	65949	65919
1-1/2	3/4	2	6	4-1/4	KA48-5	65920	65950	65921
1-1/2	1-1/4	2	6	4-1/2	KA48-8	65922	65951	65923
1-1/2	1-1/4	3	6	5-1/2	KA48-8A	65924	65952	65925
1-1/2	1-1/4	4	6	6-1/2	KA48-8B	65926	65953	65927
1-1/2	1-1/4	6	6	8-1/2	KA48-8D	65928	65954	65929
2	1-1/4	2	6	4-1/2	KAS64-8	65930	65959	65931
2	1-1/4	4	6	6-1/2	KAS64-8B	65932	65960	65933
8 Flutes								
2	1-1/4	2	8	4-1/2	KA64-8	66002	66029	66003
2	1-1/4	4	8	6-1/2	KA64-8B	66004	66030	66005

4, 6, 8 & 10 Flutes Combination Shank

Combination Shanks

Diameter of Mill	Diameter of Shank	Length of Cut	No. of Flutes	Overall Length	Part No.	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
4 Flutes								
2	2	4	4	7-3/4	KAF64-11B	65846	65873	65847
2	2	6	4	9-3/4	KAF64-11C	65848	65874	65849
2	2	8	4	11-3/4	KAF64-11D	65850	65875	65851
6 Flutes								
2	2	4	6	7-3/4	KAS64-11B	65934	65955	65935
2	2	5	6	8-3/4	KAS64-11E	65936	65958	65937
2	2	6	6	9-3/4	KAS64-11C	65938	65956	65939
2	2	8	6	11-3/4	KAS64-11D	65940	65957	65941
8 Flutes								
2	2	4	8	7-3/4	KA64-11B	66006	66025	66007
2	2	5	8	8-3/4	KA64-11E	66008	66028	66009
2	2	6	8	9-3/4	KA64-11C	66010	66026	66011
2	2	8	8	11-3/4	KA64-11D	66012	66027	66013
2-1/2	2	4	8	7-3/4	KA80-11	66014		
2-1/2	2	6	8	9-3/4	KA80-11B	66016		
2-1/2	2	8	8	11-3/4	KA80-11C	66018		
10 Flutes								
3	2-1/2	4	10	7-3/4	KA96-12	66020		
3	2-1/2	6	10	9-3/4	KA96-12B	66022		
3	2-1/2	8	10	11-3/4	KA96-12C	66024		

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Multi-Flute, Center Cutting

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
4 Flutes								
3/8	3/8	3/4	4	2-1/2	KAC12-2	66102	66100	66103
3/8	3/8	1-3/8	4	3-1/8	KAC12-2A	66104	66101	66105
1/2	1/2	1-1/4	4	3-1/4	KAC16-3	66106	66168	66107
1/2	1/2	2	4	4	KAC16-3A	66108	66169	66109
1/2	1/2	3	4	5	KAC16-3B	66110	66170	66111
5/8	5/8	1-5/8	4	3-3/4	KAC20-4	66112	66171	66113
5/8	5/8	2-1/2	4	4-5/8	KAC20-4A	66114	66172	66115
5/8	5/8	4	4	6-1/8	KAC20-4B	66116	66173	66117
3/4	3/4	1-5/8	4	3-7/8	KAC24-5	66118	66174	66119
3/4	3/4	3	4	5-1/4	KAC24-5A	66120	66175	66121
3/4	3/4	4	4	6-1/4	KAC24-5B	66122	66176	66123
7/8	7/8	1-7/8	4	4-1/8	KAC28-6	66124	66177	66125
7/8	7/8	3-1/2	4	5-3/4	KAC28-6A	66126	66178	66127
7/8	7/8	5	4	7-1/4	KAC28-6B	66128	66179	66129
1	1	2	4	4-1/2	KAC32-7	66130	66180	66131
1	1	3	4	5-1/2	KAC32-7C	66132	66181	66133
1	1	4	4	6-1/2	KAC32-7A	66134	66182	66135
1	1	6	4	8-1/2	KAC32-7B	66136	66183	66137
1-1/4	1-1/4	2	4	4-1/2	KAC40-8	66138	66184	66139
1-1/4	1-1/4	3	4	5-1/2	KAC40-8C	66140	66185	66141
1-1/4	1-1/4	4	4	6-1/2	KAC40-8A	66142	66186	66143
1-1/4	1-1/4	6	4	8-1/2	KAC40-8B	66144	66187	66145
1-1/2	1-1/4	2	4	4-1/2	KAC48-8	66146	66188	66147
1-1/2	1-1/4	4	4	6-1/2	KAC48-8A	66148	66189	66149
1-1/2	1-1/4	6	4	8-1/2	KAC48-8B	66150	66190	66151
4 & 6 Flutes Combination Shanks								
4 Flutes								
2	2	3	4	6-3/4	KAC64-11A	66152	66191	66153
2	2	4	4	7-3/4	KAC64-11B	66154	66192	66155
2	2	6	4	9-3/4	KAC64-11C	66156	66193	66157
2	2	8	4	11-3/4	KAC64-11D	66158	66194	66159
6 Flutes								
2	2	3	6	6-3/4	KSC64-11A	66160	66634	66161
2	2	4	6	7-3/4	KSC64-11B	66162	66635	66163
2	2	5	6	8-3/4	KSC64-11E	66164	66637	66165
2	2	6	6	9-3/4	KSC64-11C	66166	66636	66167

Single-End *Center Cutting*

with WELDON Shank
R.H. Cut, R.H. Helix
Two screw drive on 7/8" shanks and larger

High Speed Steel

Cutting Diameter Tolerance is + .003
– .003

Combination Shank

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

Premium 8% COBALT Steel
Multi-flute, Non-Center Cutting

Single-End
Non-Center Cutting
with WELDON Shank
R.H. Cut, R.H. Helix
Two screw drive on 7/8" shanks and larger

Premium 8% Cobalt Steel
Cutting Diameter Tolerance is + .003
– .003

Combination Shank

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
4 Flutes								
3/8	3/8	3/4	4	2-1/2	KPA12-2	66302	66324	66303
3/8	3/8	1-3/8	4	3-1/8	KPA12-2A	66304	66325	66305
1/2	1/2	1-1/4	4	3-1/4	KPA16-3	66306	66326	66307
1/2	1/2	2	4	4	KPA16-3A	66308	66327	66309
1/2	1/2	3	4	5	KPA16-3B	66310	66328	66311
5/8	5/8	1-5/8	4	3-3/4	KPA20-4	66312	66329	66313
5/8	5/8	2-1/2	4	4-5/8	KPA20-4A	66314	66330	66315
5/8	5/8	4	4	6-1/8	KPA20-4B	66316	66331	66317
3/4	3/4	1-5/8	4	3-7/8	KPA24-5	66318	66332	66319
3/4	3/4	3	4	5-1/4	KPA24-5A	66320	66333	66321
3/4	3/4	4	4	6-1/4	KPA24-5B	66322	66334	66323
6 Flutes								
1	1	2	6	4-1/2	KPA32-7	66402	66438	66403
1	1	3	6	5-1/2	KPA32-7A	66404	66439	66405
1	1	4	6	6-1/2	KPA32-7B	66406	66440	66407
1	1	6	6	8-1/2	KPA32-7D	66408	66441	66409
1-1/4	1-1/4	2	6	4-1/2	KPA40-8	66410	66442	66411
1-1/4	1-1/4	3	6	5-1/2	KPA40-8A	66412	66443	66413
1-1/4	1-1/4	4	6	6-1/2	KPA40-8B	66414	66444	66415
1-1/4	1-1/4	6	6	8-1/2	KPA40-8D	66416	66445	66417
1-1/2	1-1/4	2	6	4-1/2	KPA48-8	66418	66846	66419
1-1/2	1-1/4	3	6	5-1/2	KPA48-8A	66420	66447	66421
1-1/2	1-1/4	4	6	6-1/2	KPA48-8B	66422	66448	66423
1-1/2	1-1/4	6	6	8-1/2	KPA48-8D	66424	66449	66425
8 Flutes								
2	1-1/4	2	8	4-1/2	KPA64-8	66426	66450	66427
2	1-1/4	4	8	6-1/2	KPA64-8B	66428	66451	66429
Combination Shanks								
8 Flutes								
2	2	4	8	7-3/4	KPA64-11B	66430	66452	66431
2	2	5	8	8-3/4	KPA64-11E	66432	66453	66433
2	2	6	8	9-3/4	KPA64-11C	66434	66454	66435
2	2	8	8	11-3/4	KPA64-11D	66436	66455	66437

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Premium 8% COBALT Steel Center Cutting, Multi-flute

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
4 Flutes								
1/2	1/2	2	4	4	KPAC16-3A	66502	66516	66503
1/2	1/2	3	4	5	KPAC16-3B	66504	66517	66505
5/8	5/8	2-1/2	4	4-5/8	KPAC20-4A	66506	66518	66507
3/4	3/4	3	4	5-1/4	KPAC24-5A	66508	66519	66509
1	1	2	4	4-1/2	KPAC32-7	66510	66520	66511
1	1	4	4	6-1/2	KPAC32-7B	66512	66521	66513
1-1/2	1-1/4	4	4	6-1/2	KPAC48-8B	66514	66522	66515
6 Flutes								
1	1	2	6	4-1/2	KPSC32-7	66602	66624	66603
1	1	4	6	6-1/2	KPSC32-7B	66604	66625	66605
1-1/4	1-1/4	2	6	4-1/2	KPSC40-8	66606	66626	66607
1-1/4	1-1/4	3	6	5-1/2	KPSC40-8A	66608	66627	66609
1-1/4	1-1/4	4	6	6-1/2	KPSC40-8B	66610	66628	66611
1-1/4	1-1/4	6	6	8-1/2	KPSC40-8D	66612	66629	66613
1-1/2	1-1/4	4	6	6-1/2	KPSC48-8B	66614	66630	66615
WELDON Shank								
6 Flutes								
2	2	4	6	7-3/4	KPSC64-10B	66616	66631	66617
2	2	6	6	9-3/4	KPSC64-10C	66618	66632	66619
WELDON Shank								
8 Flutes								
2	2	4	8	7-3/4	KPEC64-10B	66620	66638	66621
2	2	6	8	9-3/4	KPEC64-10C	66622	66639	66623

Single-End *Center Cutting*

with WELDON Shank
R.H. Cut, R.H. Helix
Two screw drive on 7/8" shanks and larger

Premium 8% Cobalt Steel

Cutting Diameter Tolerance is + .003
– .003

WELDON Shank

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

2 Flutes

The advantages of Ski-Kut® end mills over other types of end mills for machining aluminum are:

- Better chip elevation – chips are lifted and thrown clear of the workpiece – which reduces chip recutting, galling and flute clogging.
- High cutting speeds.
- Greater feed rates.
- Less vibration and chatter.
- Longer cutter life.
- Superior workpiece finishes.
- Better workpiece tolerances.

The advantages result in higher cutting efficiencies which in turn lead to greater productivity and reduced operating costs. Ski-Kut end mills are but one of the many products originated, designed, developed and manufactured by The Weldon Tool Company to serve the diversified needs of industry.

Two SKI-KUT Styles for Cutting Aluminum

Center Cutting

with WELDON Shank
Two screw drive on 7/8" shanks and larger

High Speed Steel
Cutting Diameter + .003
Tolerance is – .000

SKB Series for roughing

Designed for heavier stock removal, the polished primary flute face and polished relief minimize adherence of chips. Smoother shearing action of the high helix minimizes the hammering effect often found in 2-flute mills with slower helix angles.

Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	Part No. Roughing	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/4	3/8	5/8	2-7/16	SKB8-2	57010	57011	57144
1/4	3/8	1-1/4	3-1/16	SKB8-2A	57012	57013	57145
1/4	3/8	1-3/4	3-9/16	SKB8-2B	57014	57015	57146
5/16	3/8	3/4	2-1/2	SKB10-2	57020	57021	57147
5/16	3/8	1-3/8	3-3/16	SKB10-2A	57022	57023	57148
5/16	3/8	2	3-3/4	SKB10-2B	57024	57025	57149
3/8	3/8	3/4	2-1/2	SKB12-2	57030	57031	57150
3/8	3/8	1-1/2	3-1/4	SKB12-2A	57032	57033	57151
3/8	3/8	2-1/2	4-1/4	SKB12-2B	57034	57035	57152
7/16	3/8	1	2-11/16	SKB14-2	57040	57041	57153
7/16	1/2	1-3/4	3-3/4	SKB14-3A	57042	57043	57154
7/16	1/2	2-3/4	4-3/4	SKB14-3B	57044	57045	57155
1/2	1/2	1-1/4	3-1/4	SKB16-3	57050	57051	57156
1/2	1/2	2	4	SKB16-3A	57052	57053	57157
1/2	1/2	3	5	SKB16-3B	57054	57055	57158
5/8	5/8	1-5/8	3-3/4	SKB20-4	57060	57061	57159
5/8	5/8	2-1/2	4-5/8	SKB20-4A	57062	57063	57160
5/8	5/8	4	6-1/8	SKB20-4C	57064	57065	57161
3/4	3/4	1-5/8	3-7/8	SKB24-5	57070	57071	57162
3/4	3/4	3	5-1/4	SKB24-5B	57072	57073	57163
3/4	3/4	4	6-1/4	SKB24-5D	57074	57075	57164
7/8	7/8	1-7/8	4-1/8	SKB28-6	57080	57081	57165
7/8	7/8	3-1/2	5-3/4	SKB28-6B	57082	57083	57166
7/8	7/8	5	7-1/4	SKB28-6D	57084	57085	57167
1	1	2	4-1/2	SKB32-7	57090	57091	57168
1	1	3	5-1/2	SKB32-7A	57092	57093	57169
1	1	4	6-1/2	SKB32-7B	57094	57095	57170
1	1	6	8-1/2	SKB32-7D	57096	57097	57171
1-1/4	1-1/4	2	4-1/2	SKB40-8	57110	57111	57172
1-1/4	1-1/4	3	5-1/2	SKB40-8A	57112	57113	57173
1-1/4	1-1/4	4	6-1/2	SKB40-8B	57114	57115	57174
1-1/4	1-1/4	6	8-1/2	SKB40-8D	57116	57117	57175
1-1/2	1-1/4	2	4-1/2	SKB48-8	57120	57121	57176
1-1/2	1-1/4	3	5-1/2	SKB48-8A	57122	57123	57177
1-1/2	1-1/4	4	6-1/2	SKB48-8B	57124	57125	57178
1-1/2	1-1/4	6	8-1/2	SKB48-8D	57126	57127	57179
1-3/4	1-1/4	2	4-1/2	SKB56-8	57130	57131	57180
1-3/4	1-1/4	4	6-1/2	SKB56-8B	57132	57133	57181
2	1-1/4	2	4-1/2	SKB64-8	57140	57141	57182
2	1-1/4	4	6-1/2	SKB64-8B	57142	57143	57183

NOTE: See page 101 for specific cutting diameter tolerances.

SKX Series for profile finishing

Especially designed for profile finishing of aluminum and most non-ferrous metals. Ideal for tape-controlled and tracing machine operations, these Weldon SKX end mills provide quiet cutting and chatter-free work finishes often difficult to obtain with other type tools.

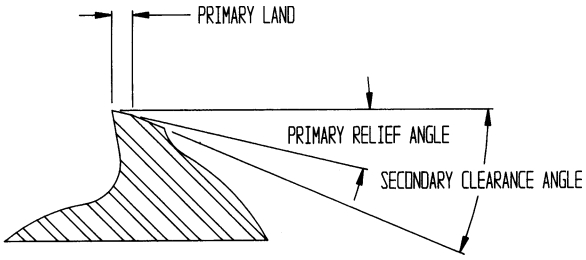
Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	Part No. Profiling	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/4	3/8	5/8	2-7/16	SKX8-2	57202	57203	57281
1/4	3/8	1-1/4	3-1/16	SKX8-2A	57204	57205	57282
1/4	3/8	1-3/4	3-9/16	SKX8-2B	57206	57207	57283
5/16	3/8	3/4	2-1/2	SKX10-2	57208	57209	57284
5/16	3/8	1-3/8	3-3/16	SKX10-2A	57210	57211	57285
5/16	3/8	2	3-3/4	SKX10-2B	57212	57213	57286
3/8	3/8	3/4	2-1/2	SKX12-2	57214	57215	57287
3/8	3/8	1-1/2	3-1/4	SKX12-2A	57216	57217	57288
3/8	3/8	2-1/2	4-1/4	SKX12-2B	57218	57219	57289
7/16	3/8	1	2-11/16	SKX14-2	57220	57221	57290
7/16	1/2	1-3/4	3-3/4	SKX14-3A	57222	57223	57291
7/16	1/2	2-3/4	4-3/4	SKX14-3B	57224	57225	57292
1/2	1/2	1-1/4	3-1/4	SKX16-3	57226	57227	57293
1/2	1/2	2	4	SKX16-3A	57228	57229	57294
1/2	1/2	3	5	SKX16-3B	57230	57231	57295
5/8	5/8	1-5/8	3-3/4	SKX20-4	57232	57233	57296
5/8	5/8	2-1/2	4-5/8	SKX20-4A	57234	57235	57299
5/8	5/8	4	6-1/8	SKX20-4C	57324	57237	57300
3/4	3/4	1-5/8	3-7/8	SKX24-5	57238	57239	57301
3/4	3/4	3	5-1/4	SKX24-5B	57240	57241	57302
3/4	3/4	4	6-1/4	SKX24-5D	57242	57243	57303
7/8	7/8	1-7/8	4-1/8	SKX28-6	57244	57245	57304
7/8	7/8	3-1/2	5-3/4	SKX28-6B	57246	57247	57305
7/8	7/8	5	7-1/4	SKX28-6D	57248	57249	57306
1	1	2	4-1/2	SKX32-7	57250	57251	57307
1	1	3	5-1/2	SKX32-7A	57252	57253	57308
1	1	4	6-1/2	SKX32-7B	57254	57255	57309
1	1	6	8-1/2	SKX32-7D	57256	57257	57310
1-1/4	1-1/4	2	4-1/2	SKX40-8	57258	57259	57311
1-1/4	1-1/4	3	5-1/2	SKX40-8A	57260	57261	57312
1-1/4	1-1/4	4	6-1/2	SKX40-8B	57262	57263	57313
1-1/4	1-1/4	6	8-1/2	SKX40-8D	57264	57265	57314
1-1/2	1-1/4	2	4-1/2	SKX48-8	57266	57267	57315
1-1/2	1-1/4	3	5-1/2	SKX48-8A	57268	57269	57316
1-1/2	1-1/4	4	6-1/2	SKX48-8B	57270	57271	57317
1-1/2	1-1/4	6	8-1/2	SKX48-8D	57272	57273	57318
1-3/4	1-1/4	2	4-1/2	SKX56-8	57274	57275	57319
1-3/4	1-1/4	4	6-1/2	SKX56-8B	57276	57277	57320
2	1-1/4	2	4-1/2	SKX64-8	57278	57279	57321
2	1-1/4	4	6-1/2	SKX64-8B	57280	57323	57322

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

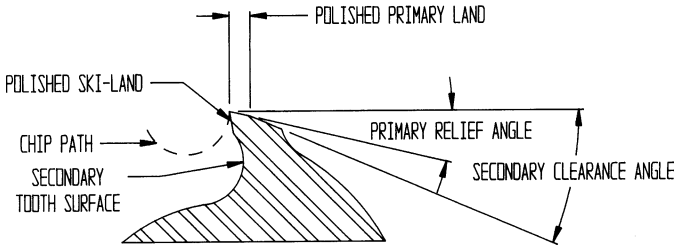
Design Features

The patented Weldon Ski-Kut® end mill was designed and developed specifically to machine aluminum. Due to the machinability characteristics of this metal, Ski-Kut end mills are produced with certain basic design features not found in other end mills in Weldon's product line.



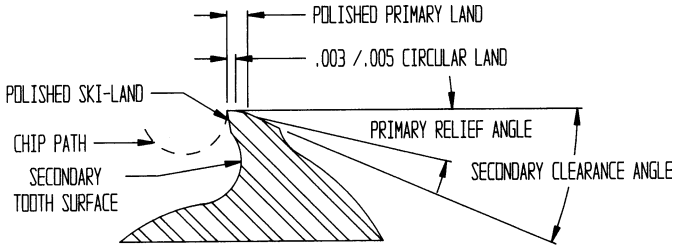
CONVENTIONAL END MILL

Illustration 1



SKB END MILL

Illustration 2



SKX END MILL

Illustration 3

High Helix

Unlike the 30° helix angle of conventional Weldon end mills, the two-flute Ski-Kut end mill has an increased helix angle of 45°, which provides for greater shearing action and improved ability to elevate and throw chips clear of the workpiece.

Further, this high helix minimizes the hammering effects so often identified with two-flute end mills of lower helix angles.

Ski-Land

The second design feature which makes the Ski-Kut end mill unique, is the tooth itself.

The conventional end mill has a polished primary relief land, a ground secondary clearance land and a smooth continuous tooth face which curves uniformly into the web structure.

(See illustration #1)

The Ski-Kut end mill also has a polished primary relief angle, but this is combined with a narrow polished positive rake surface on the tooth face followed by a secondary undercut tooth surface which curves uniformly into the web structure.

This narrow polished tooth surface is a Ski-Land and is a very important design feature, for it directs the chip away from the secondary tooth surface and the web of the tool. Further, polishing the primary relief land and Ski-Land provides smooth chip flow and minimizes adherence of chips that invariably leads to clogging.

Weldon has two types of Ski-Kut end mills with these design features, one for roughing (SKB series) and one for profile finishing (SKX series).

SKB Series

The SKB series is used for operations which require large amounts of material to be removed, such as in pocketing and heavy profiling. The cutting edges of the SKB series are relieved to an extremely keen edge. *(See illustration #2)*

This keen-edge cutter permits higher than normal feed rates without excessive chip loading or clogging.

SKX Series

The SKX series is used for profile finishing of part surfaces where the radial depth of cut is approximately 5% of the tool diameter.

The peripheral cutting edges of the SKX series are relieved to a .003 to .005 wide circular land. *(See illustration #3)*

This circular land minimizes the chatter usually experienced when finish machining aluminum and "settles the cutter down" so it cuts quietly. It also permits feeding into corners and dwelling there momentarily without the usual squealing vibration that results in poor surface finish.

End Mills • SKI-CARB® for Aluminum

2 Flutes
Solid Carbide

- **Maximum spindle speeds possible**
- **Increased feed rates**
- **Superior workpiece finishes**
- **Fast chip ejection**
- **Better workpiece tolerances**
- **Quiet operation**

The new, 2-flute SKI-CARB® End Mill line is based on proven tool geometry that allows those who mill aluminum to operate their milling equipment to full capacity in roughing and finishing operations.

Greater feeds and speeds are made possible with the exclusive SKI-CARB design to increase your production rates and lower your production costs. These SKI-CARB End Mills give you clean, easy shearing action for chatter-free work finishes, better workpiece tolerances, and significantly longer tool life. All sizes are precision manufactured *UniLead*®. See page 95 for specific leads.

Solid Carbide for Cutting Aluminum *Center Cutting*

with WELDON Shank
R.H. Cut, R.H. Helix
Two screw drive on 7/8" shanks and larger

Cutting Diameter Tolerance is + .0000
– .0005

Shank Diameter: – .0001 – .0005

Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	*UniLead*® Dimensions	Part Number	Uncoated EDP No.
1/4	3/8	3/4	2-7/16	0.7854	SKXC8-2	57410
1/4	3/8	1-1/4	3-1/16	0.7854	SKXC8-2A	57412
1/4	3/8	1-3/4	3-9/16	0.7854	SKXC8-2B	57414
5/16	3/8	1-3/8	3-1/8	0.9817	SKXC10-2A	57420
3/8	3/8	3/4	2-1/2	1.1781	SKXC12-2	57430
3/8	3/8	1-1/2	3-1/4	1.1781	SKXC12-2A	57432
3/8	3/8	2-1/2	4-1/4	1.1781	SKXC12-2B	57434
1/2	1/2	1-1/4	3-1/4	1.5708	SKXC16-3	57440
1/2	1/2	2	4	1.5708	SKXC16-3A	57442
1/2	1/2	3	5	1.5708	SKXC16-3B	57444
5/8	5/8	1-5/8	3-3/4	1.9635	SKXC20-4	57450
5/8	5/8	2-1/2	4-5/8	1.9635	SKXC20-4A	57452
3/4	3/4	1-5/8	3-7/8	2.3562	SKXC24-5	57460
3/4	3/4	3	5-1/4	2.3562	SKXC24-5B	57462
3/4	3/4	4	6-1/4	2.3562	SKXC24-5D	57464
1	1	2	4-1/2	3.1416	SKXC32-7	57470
1	1	4	6-1/2	3.1416	SKXC32-7B	57472

NOTE: Leads are in inches.

NOTE: See page 101 for specific cutting diameter tolerances.

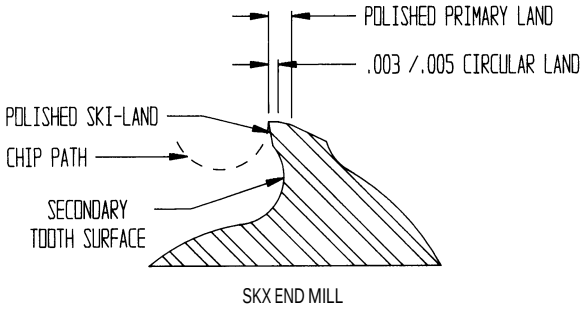
For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Design Features

SKI-CARB End Mills were designed and developed specifically to machine aluminum on conventional milling machines and advanced CNC production mills at maximum available speeds. This particular end mill is manufactured with design features that are new to the carbide end mill industry.

Ski-Land. This unique tooth design directs the chip away from the secondary tooth surface and web, throwing the chip clear at high cutting speeds.



UNIQUE TOOTH DESIGN

Polished Primary Relief. Provides smooth chip flow to minimize chip adherence that invariably leads to clogging.

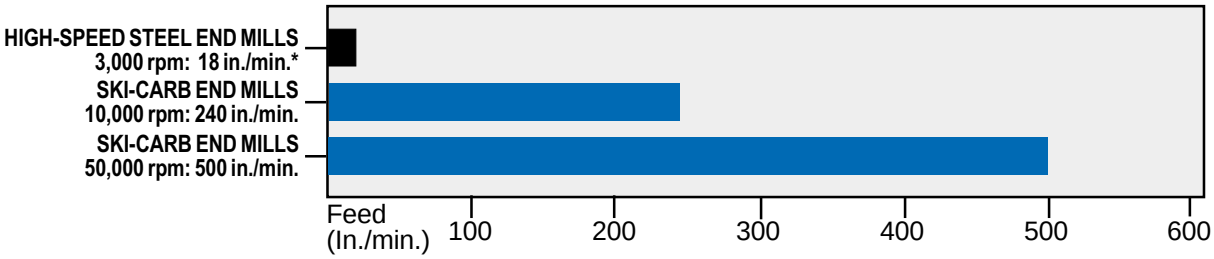
High Helix. The 45° spiral provides greater shearing action for improved workpiece surface finishes. This feature also helps elevate the chips up and away from the cut.

Micrograin Carbide. SKI-CARB End Mills are manufactured using special lab-certified, micrograin carbide. The high abrasion resistance and TRS (Transverse Rupture Strength) provide longer tool life and closer controlled tolerances through minimal deflection at high speeds.

Performance Data

Greater Production Rates. Increased speeds are obtainable with SKI-CARB, allowing you to remove material up to 10 times faster (or more). This means increased machine utilization and higher profits off your shop floor.

Operation: Profile Milling, 2024 Aluminum, 1/2-in. dia. end mills
Machine: CNC Vertical Mill.



* Met Cut recommended speed/feed for aluminum

RECOMMENDED USE

Speed and Feed		
Mill Dia. Size (In.)	Feed Tooth	Speed (RPM)
1/4	.003	MAXIMUM AVAILABLE
5/16	.004	
3/8	.005	
1/2	.006	
5/8	.007	
3/4	.008	
1	.010	

To achieve the best results, we recommend the use of two or more coolant nozzles directed on the end mill at all times. This assures constant cooling of the tool, as well as a good flush for the chips produced.

The feeds listed in our chart are good starting points. Variations of these will depend on your radial and axial depth-of-cut, machine condition, and whether you're machining thin sections or frail workpieces.

Resharpening of SKI-CARB End Mills is made possible with the CNC-ground *UniLead*® flute construction.

Patent #5,049,009
Trademark #1,620,844

3 and 4 Flute End Mills

The design of Weldon's 3-flute and 4-flute, constant helix end mills provides many advantages to the user. It assures freer and faster cutting because the chip is more evenly formed over the entire length of the flute. There are other important advantages, too. These tapered end mills have improved resistance to both operating side thrusts and deflections due to the constant helix geometry. Special tapered end mills can be furnished to your specifications.

Three Flute, Single-End
High Speed Steel
Center Cutting

with WELDON Shank
R.H. Cut, R.H. Helix Standard
Two screw drive on 7/8" shanks and larger

WITH 1/2° TAPER ON SIDE

Diameter of Sm. End	Diameter of Shank	Length of Cut	Overall Length	Part Number	Uncoated EDP No.
1/16	3/16	1/2	1-3/4	T0-2S-1	58002
1/16	3/16	1	2-1/4	T0-2M-1	58004
5/64	3/16	1/2	1-3/4	T0-2XS-1	58006
5/64	3/16	1	2-1/4	T0-2XM-1	58008
3/32	3/16	3/4	2	T0-3M-1	58010
3/32	3/16	1-1/2	2-11/16	T0-3L-1	58012
1/8	3/16	3/8	1-5/8	T0-4S-1	58014
1/8	3/16	3/4	2	T0-4M-1	58016
1/8	3/16	1	2-1/4	T0-4L-1	58018
3/16	3/8	3/4	2-5/8	T0-6A-2	58020
3/16	3/8	1-1/4	3-1/8	T0-6S-2	58022
1/4	3/8	3/4	2-1/2	T0-8S-2	58024
1/4	3/8	1-1/4	3	T0-8M-2	58026
1/4	3/8	2-1/4	4	T0-8L-2	58028
1/4	3/8	3-1/4	5	T0-8E-2	58030
3/8	1/2	1-1/4	3-1/4	T0-12A-3	58032
3/8	1/2	2-1/4	4-1/4	T0-12S-3	58034
3/8	1/2	3-1/4	5-1/4	T0-12M-3	58036
1/2	1/2	1-1/4	3-1/4	T0-16S-3	58038
1/2	1/2	2-1/4	4-1/4	T0-16M-3	58040
1/2	5/8	3-1/4	5-3/8	T0-16L-4	58042
5/8	3/4	4-1/4	6-1/2	T0-20A-5	58044

WITH 1° TAPER ON SIDE

Diameter of Sm. End	Diameter of Shank	Length of Cut	Overall Length	Part Number	Uncoated EDP No.
1/16	3/16	1/2	1-3/4	T1-2S-1	58102
1/16	3/16	1	2-1/4	T1-2M-1	58104
5/64	3/16	1/2	1-3/4	T1-2XS-1	58106
5/64	3/16	1	2-1/4	T1-2XM-1	58108
3/32	3/16	3/4	2	T1-3M-1	58110
3/32	3/16	1-1/2	2-11/16	T1-3L-1	58112
1/8	3/16	3/8	1-5/8	T1-4S-1	58114
1/8	3/16	3/4	2	T1-4M-1	58116
1/8	3/16	1	2-1/4	T1-4L-1	58118
3/16	3/8	3/4	2-5/8	T1-6A-2	58120
3/16	3/8	1-1/4	3-1/8	T1-6S-2	58122
1/4	3/8	3/4	2-1/2	T1-8S-2	58124
1/4	3/8	1-1/4	3	T1-8M-2	58126
1/4	3/8	2-1/4	4	T1-8L-2	58128
1/4	3/8	3-1/4	5	T1-8E-2	58130
3/8	1/2	1-1/4	3-1/4	T1-12A-3	58132
3/8	1/2	2-1/4	4-1/4	T1-12S-3	58134

WITH 1-1/2° TAPER ON SIDE

Diameter of Sm. End	Diameter of Shank	Length of Cut	Overall Length	Part Number	Uncoated EDP No.
3/32	3/16	1	2-1/4	T1X-3M-1	58150
3/32	3/16	1-1/4	2-1/2	T1X-3L-1	58152
7/64	3/16	1	2-1/4	T1X-3X-1	58154
1/8	3/16	3/4	2	T1X-4S-1	58156
1/8	3/16	1	2-1/4	T1X-4M-1	58158
1/8	3/8	1-3/8	3-1/4	T1X-4L-2	58160
3/16	3/8	1-1/4	3-1/8	T1X-6M-2	58162
3/16	3/8	2-1/4	4	T1X-6L-2	58164
1/4	3/8	3/4	2-1/2	T1X-8S-2	58166
1/4	3/8	1-1/4	3	T1X-8M-2	58168
1/4	3/8	2-1/4	4	T1X-8L-2	58170
3/8	1/2	1-1/4	3-1/4	T1X-12M-3	57946
3/8	1/2	2-1/4	4-1/4	T1X-12L-3	57947
1/2	1/2	1-1/4	3-1/4	T1X-16M-3	57948
1/2	5/8	2-1/4	4-1/2	T1X-16L-4	57949

WITH 2° TAPER ON SIDE

Diameter of Sm. End	Diameter of Shank	Length of Cut	Overall Length	Part Number	Uncoated EDP No.
1/16	3/16	1/2	1-3/4	T2-2S-1	58202
1/16	3/16	1	2-1/4	T2-2M-1	58204
5/64	3/16	1/2	1-3/4	T2-2XS-1	58206
5/64	3/16	1	2-1/4	T2-2XM-1	58208
5/64	3/16	1-1/2	2-11/16	T2-2XL-1	58210
3/32	3/16	3/4	2	T2-3S-1	58212
3/32	3/16	1-1/4	2-1/2	T2-3M-1	58214
1/8	3/16	3/4	2	T2-4S-1	58216
1/8	3/8	1	2-7/8	T2-4M-2	58218
3/16	3/8	3/4	2-5/8	T2-6A-2	58220
3/16	3/8	1-1/4	3-1/8	T2-6S-2	58222
1/4	3/8	3/4	2-1/2	T2-8S-2	58224
1/4	3/8	1-1/4	3	T2-8M-2	58226
1/4	1/2	2-1/4	4-3/8	T2-8L-3	58228
1/4	1/2	3-1/4	5-1/4	T2-8E-3	58230
3/8	1/2	1-1/4	3-1/4	T2-12A-3	58232
3/8	1/2	2-1/4	4-1/4	T2-12S-3	58234
3/8	5/8	3-1/4	5-3/8	T2-12M-4	58236
1/2	1/2	1-1/4	3-1/4	T2-16S-3	58238
1/2	5/8	2-1/4	4-3/8	T2-16M-4	58240
1/2	5/8	3-1/4	5-3/8	T2-16L-4	58242
5/8	3/4	4-1/4	6-1/2	T2-20A-5	58244

WITH 3° TAPER ON SIDE

Diameter of Sm. End	Diameter of Shank	Length of Cut	Overall Length	Part Number	Uncoated EDP No.
3/32	3/8	1	2-7/8	T3-3A-2	58302
3/32	3/8	1-1/4	3-1/8	T3-3S-2	58304
3/32	3/8	1-1/2	3-3/8	T3-3M-2	58306
3/32	3/8	2	3-3/4	T3-3L-2	58308
3/32	3/8	2-1/2	4-1/4	T3-3E-2	58310
7/64	3/8	1	2-7/8	T3-3XS-2	58312
7/64	3/8	1-1/2	3-3/8	T3-3XM-2	58314
7/64	3/8	2	3-3/4	T3-3XL-2	58316
1/8	3/8	3/4	2-5/8	T3-4S-2	58318
1/8	3/8	1	2-7/8	T3-4C-2	58320
1/8	3/8	1-1/8	3	T3-4A-2	58322
1/8	3/8	1-1/2	3-3/8	T3-4M-2	58324
1/8	3/8	2	3-3/4	T3-4B-2	58326
1/8	1/2	2-1/2	4-1/2	T3-4L-3	58328
1/8	1/2	3	5	T3-4E-3	58330
3/16	3/8	3/4	2-5/8	T3-6A-2	58332

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

3 and 4 Flute End Mills

Continued from previous page

Diameter of Sm. End	Diameter of Shank	Length of Cut	Overall Length	Part Number	Uncoated EDP No.
WITH 3° TAPER ON SIDE (continued)					
3/16	3/8	1-1/4	3-1/8	T3-6S-2	58334
3/16	1/2	2-1/2	4-1/2	T3-6M-3	58336
3/16	1/2	3	5	T3-6L-3	58338
3/16	5/8	3-1/4	5-3/8	T3-6E-4	58340
3/16	5/8	4	6-1/8	T3-6B-4	58342
1/4	3/8	3/4	2-1/2	T3-8S-2	58344
1/4	3/8	1	2-3/4	T3-8A-2	58346
1/4	1/2	1-1/4	3-1/4	T3-8M-3	58348
1/4	1/2	2-1/4	4-1/4	T3-8L-3	58350
1/4	1/2	3-1/4	5-1/4	T3-8E-3	85352
1/4	3/4	4	6-1/4	T3-8B-5	58354
3/8	1/2	1-1/4	3-1/4	T3-12A-3	58356
3/8	5/8	2-1/4	4-3/8	T3-12S-4	58358
3/8	5/8	3-1/4	5-3/8	T3-12M-4	58360
1/2	1/2	1-1/4	3-1/4	T3-16S-3	58362
1/2	5/8	2-1/4	4-3/8	T3-16M-4	58364
1/2	3/4	3-1/4	5-1/2	T3-16M-5	57943
WITH 5° TAPER ON SIDE					
3/32	3/8	3/4	2-5/8	T5-3A-2	58502
3/32	3/8	1	2-7/8	T5-3B-2	58504
3/32	3/8	1-1/4	3	T5-3S-2	58508
3/32	3/8	1-1/2	3-5/16	T5-3M-2	58506
3/32	1/2	2	4	T5-3L-3	58510
3/32	5/8	2-1/2	4-5/8	T5-3E-4	58564
7/64	3/8	1	2-7/8	T5-3XS-2	58512
7/64	3/8	1-1/2	3-5/16	T5-3XM-2	58514
7/64	1/2	2	4	T5-3XL-3	58516
1/8	3/8	3/4	2-5/8	T5-4S-2	58518
1/8	3/8	1	2-7/8	T5-4C-2	58522
1/8	3/8	1-1/8	2-7/8	T5-4A-2	58520
1/8	3/8	1-1/2	3-1/4	T5-4M-2	58524
1/8	3/8	2	3-3/4	T5-4B-2	58526
1/8	1/2	2-1/2	4-1/2	T5-4L-3	58528
1/8	3/4	3	5-1/4	T5-4E-5	58530
3/16	3/8	3/4	2-9/16	T5-6A-2	58532
3/16	1/2	1-1/4	3-3/8	T5-6S-3	58534
3/16	5/8	2-1/2	4-5/8	T5-6M-4	58536
3/16	3/4	3	5-1/4	T5-6L-5	58538
3/16	3/4	3-1/4	5-1/2	T5-6E-5	58540
3/16	3/4	4	6-1/4	T5-6B-5	58542
1/4	3/8	3/4	2-1/2	T5-8S-2	58544

Diameter of Sm. End	Diameter of Shank	Length of Cut	Overall Length	Part Number	Uncoated EDP No.
WITH 5° TAPER ON SIDE (continued)					
1/4	1/2	1	3	T5-8A-3	58546
1/4	1/2	1-1/4	3-1/4	T5-8M-3	58548
1/4	5/8	2-1/4	4-3/8	T5-8L-4	58550
1/4	3/4	3-1/4	5-1/2	T5-8E-5	58552
1/4	3/4	4	6-1/4	T5-8B-5	58554
3/8	5/8	1-1/4	3-3/8	T5-12A-4	58556
3/8	3/4	2-1/4	4-1/2	T5-12S-5	58558
3/8	3/4	3-1/4	5-1/2	T5-12M-5	58560
1/2	1/2	1-1/4	3-1/4	T5-16S-3	58562
1/2	3/4	2-1/4	4-1/2	T5-16S-5	57944
1/2	3/4	3-1/4	5-5/8	T5-16M-5	57945
WITH 7° TAPER ON SIDE					
5/64	3/8	1	2-3/4	T7-2M-2	58702
3/32	3/8	1	2-3/4	T7-3A-2	58704
3/32	3/8	1-1/4	3	T7-3S-2	58706
3/32	1/2	1-1/2	3-1/2	T7-3M-3	58708
1/8	3/8	3/4	2-9/16	T7-4S-2	58710
1/8	3/8	1	2-3/4	T7-4A-2	58712
1/8	1/2	1-1/2	3-1/2	T7-4M-3	58714
3/16	1/2	1-1/4	3-1/4	T7-6S-3	58716
1/4	3/8	3/4	2-1/2	T7-8S-2	58718
1/4	1/2	1-1/4	3-1/4	T7-8M-3	58720
1/4	3/4	2-1/4	4-1/2	T7-8L-5	58722
3/8	3/4	2-1/4	4-1/2	T7-12S-5	58724
1/2	5/8	1-1/4	3-3/8	T7-16S-4	58726
WITH 10° TAPER ON SIDE					
1/16	3/8	1/2	2-3/8	T10-2S-2	57900
1/16	3/8	3/4	2-5/8	T10-2M-2	57901
3/32	3/8	1/2	2-3/8	T10-3S-2	57902
3/32	3/8	3/4	2-5/8	T10-3M-2	57903
3/32	5/8	1-1/2	3-5/8	T10-3M-4	58902
1/8	3/8	3/4	2-5/8	T10-4S-2	57904
1/8	1/2	1-1/2	3-1/2	T10-4A-3	57905
1/8	1/2	3/4	2-3/4	T10-4S-3	58904
1/8	5/8	1-1/4	3-3/8	T10-4M-4	58906
3/16	1/2	1-1/4	3-3/8	T10-6M-3	57906
1/4	1/2	3/4	2-3/4	T10-8S-3	58908
1/4	5/8	1-1/4	3-3/8	T10-8M-4	58910
1/4	3/4	2-1/4	4-1/2	T10-8L-5	58912
3/8	5/8	1-1/4	3-1/2	T10-12M-4	57907
1/2	3/4	1-1/4	3-1/2	T10-16M-5	57908
1/2	1	2-1/4	4-3/4	T10-16L-7	57909

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

3 and 4 Flute End Mills

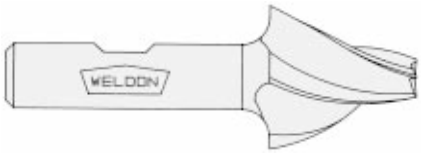
Three and Four Flute, Single-End High Speed Steel
Center Cutting (Three Flute Only)

with WELDON Shank
R.H. Cut, R.H. Helix Standard
Two screw drive on 7/8" shanks and larger

Diameter of Sm. End	Diameter of Shank	Length of Cut	Overall Length	Part Number	Uncoated EDP No.
WITH 15° TAPER PER SIDE					
3/32	3/8	1/2	2-3/8	T15-3S-2	57910
3/32	1/2	3/4	2-7/8	T15-3M-3	57911
3/32	1/2	1-1/2	3-3/4	T15-3L-3	57912
1/8	1/2	1/2	2-5/8	T15-4S-3	57913
1/8	1/2	3/4	2-7/8	T15-4M-3	57914
1/8	1/2	1	3-1/8	T15-4L-3	57915
1/8	1/2	1-1/4	3-1/2	T15-4E-3	57916
3/16	1/2	1	3-1/8	T15-6L-3	57917
1/4	1/2	1	3-1/8	T15-8L-3	57918
1/4	3/4	1-1/2	3-3/4	T15-8E-5	57919
5/16	3/4	1	3-1/4	T15-10M-5	57920
3/8	3/4	1-1/4	3-5/8	T15-12M-5	57921
1/2	3/4	1-1/4	3-5/8	T15-16M-5	57922
1/2	**1-1/4**	**2-1/4**	**4-7/8**	**T15-16L-8**	**57923**
WITH 20° TAPER PER SIDE					
1/8	3/8	1/2	2-1/2	T20-4S-2	57924
1/8	**1/2**	**1**	**3-1/8**	**T20-4M-3**	**57925**
3/16	**1/2**	**1**	**3-1/8**	**T20-6M-3**	**57926**
1/4	**1/2**	**1**	**3-1/8**	**T20-8M-3**	**57927**
3/8	**3/4**	**1-1/2**	**3-7/8**	**T20-12L-5**	**57928**
WITH 25° TAPER PER SIDE					
1/8	1/2	1/2	2-1/2	T25-4S-3	57929
1/8	1/2	1	3-1/8	T25-4M-3	57930
5/16	**3/4**	**1**	**3-3/8**	**T25-10M-5**	**57931**
3/8	**1**	**1-1/2**	**4-1/8**	**T25-12M-7**	**57932**

Four Flute, Non-Center Cutting Single-End High Speed Steel

with WELDON Shank
R.H. Cut, R.H. Helix Standard



Diameter of Sm. End	Diameter of Shank	Length of Cut	Overall Length	Part Number	Uncoated EDP No.
WITH 30° TAPER PER SIDE					
1/8	**1/2**	**1/2**	**2-5/8**	**T30-4S-3**	**57933**
1/8	**1/2**	**1**	**3-1/8**	**T30-4M-3**	**57934**
1/4	**3/4**	**1**	**3-3/8**	**T30-8M-5**	**57935**
1/4	**1**	**1-1/2**	**4-1/8**	**T30-8L-7**	**57936**
3/8	**1**	**1-1/4**	**3-7/8**	**T30-12M-7**	**57937**
3/8	**1**	**1-1/2**	**4-1/4**	**T30-12L-7**	**57938**
1/2	**1**	**1-1/2**	**4-1/4**	**T30-16M-7**	**57939**
WITH 45° TAPER PER SIDE					
1/8	**1/2**	**1/2**	**2-5/8**	**T45-4S-3**	**57940**
1/8	**5/8**	**3/4**	**3-1/8**	**T45-4M-4**	**57941**
1/4	**1**	**1**	**4**	**T45-8L-7**	**57942**

Tapered Clearance Routers High Speed Steel
Center Cutting

R.H. Cut, R.H. Helix
Routers other than R.H. Cut are Special

Diameter of Sm. End	Diameter of Shank	Length of Flutes	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.
.081	.098	13/16	3	2	RB-1	59010
.110	.128	7/8	3	2-1/4	RB-2	59020
.165	.1875	1-1/16	3	2-1/2	RB-3	59030
.224	.250	1-1/4	4	2-3/4	RB-4	59040

Tapered Clearance Routers are furnished with 1/4" taper per foot and 120 degree included angle drill point.
They are used in the aircraft industry for drilling into sheet metal as well as routing clearance spaces and profiling sheet metal with portable electric or air tools.
Small Diameter Tolerance is +.010
–.010

Tools in Bold are Non-Center Cutting and 4 Flute

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Weldon's new *UniLead*® precision-manufactured leads on all Bulldog® Rougher end mills

Multi-Flute, Non-Center Cutting High Speed Steel

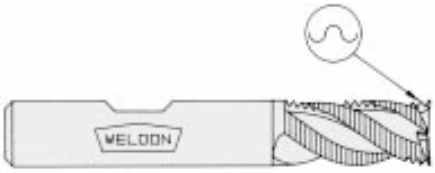
Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/4	3/8	5/8	3	2-7/16	WR8-2	64000	64001	64749
5/16	3/8	3/4	3	2-1/2	WR10-2	64002	64003	64750
3/8	3/8	3/4	4	2-1/2	WR12-2	64004	64005	64751
1/2	1/2	1	4	3	WR16-3	64006	64007	64752
1/2	1/2	1-1/4	4	3-1/4	WR16-3A	64008	64009	64753
1/2	1/2	2	4	4	WR16-3B	64010	64011	64754
5/8	5/8	1-5/8	4	3-3/4	WR20-4	64012	64013	64755
5/8	5/8	2-1/2	4	4-5/8	WR20-4B	64014	64015	64756
3/4	3/4	1-5/8	4	3-7/8	WR24-5	64016	64017	64757
3/4	3/4	3	4	5-1/4	WR24-5B	64018	64019	64758
7/8	3/4	1-7/8	5	4-1/8	WR28-5	64020	64021	64759
7/8	3/4	3-1/2	5	5-3/4	WR28-5B	64022	64023	64760
1	3/4	3/4	5	3	WR32-5	64024	64025	64761
1	3/4	1-7/8	5	4-1/8	WR32-5A	64026	64027	64762
1	3/4	4	5	6-1/4	WR32-5B	64028	64029	64763
1	1	2	5	4-1/2	WR32-7	64030	64031	64764
1	1	3	5	5-1/2	WR32-7A	64032	64033	64765
1	1	4	5	6-1/2	WR32-7B	64034	64035	64766
1-1/8	1	2	6	4-1/2	WR36-7	64036	64037	64767
1-1/4	3/4	2	6	4-1/4	WR40-5	64038	64039	64768
1-1/4	3/4	4	6	6-1/4	WR40-5B	64040	64041	64769
1-1/4	1-1/4	2	6	4-1/2	WR40-8	64042	64043	64770
1-1/4	1-1/4	3	6	5-1/2	WR40-8A	64044	64045	64771
1-1/4	1-1/4	4	6	6-1/2	WR40-8B	64046	64047	64772
1-1/2	3/4	3/4	6	3	WR48-5	64048	64049	64773
1-1/2	3/4	2-1/4	6	4-1/2	WR48-5A	64050	64051	64774
1-1/2	3/4	4	6	6-1/4	WR48-5B	64052	64053	64775
1-1/2	1-1/4	2	6	4-1/2	WR48-8	64054	64055	64776
1-1/2	1-1/4	3	6	5-1/2	WR48-8A	64056	64057	64777
1-1/2	1-1/4	4	6	6-1/2	WR48-8B	64058	64059	64778
1-1/2	1-1/4	6	6	8-1/2	WR48-8C	64060	64061	64779
1-3/4	1-1/4	2-1/2	6	5	WR56-8	64062	64063	64780
1-3/4	1-1/4	4-1/2	6	7	WR56-8A	64064	64065	64781
2	1-1/4	2	8	4-1/2	WR64-8	64066	64067	64782
2	1-1/4	4	8	6-1/2	WR64-8A	64068	64069	64783

COMBINATION SHANKS

2	2	3	8	6-3/4	WR64-11A	64070	64071	64784
2	2	4	8	7-3/4	WR64-11B	64072	64073	64785
2	2	5	8	8-3/4	WR64-11C	64074	64075	64786
2	2	6	8	9-3/4	WR64-11D	64076	64077	64787
2	2	7	8	10-3/4	WR64-11E	64078	64079	64788
2	2	8	8	11-3/4	WR64-11F	64080	64081	64789
2-1/2	2	4	8	7-3/4	WR80-11	64082		
2-1/2	2	6	8	9-3/4	WR80-11A	64084		
2-1/2	2	8	8	11-3/4	WR80-11B	64086		
2-1/2	2	10	8	13-3/4	WR80-11C	64088		
2-1/2	2	12	8	15-3/4	WR80-11D	64090		
3	2-1/2	4	10	7-3/4	WR96-12	64092		
3	2-1/2	6	10	9-3/4	WR96-12A	64094		
3	2-1/2	8	10	11-3/4	WR96-12B	64096		
3	2-1/2	10	10	13-3/4	WR96-12C	64098		
3	2-1/2	12	10	15-3/4	WR96-12D	64099		

Multi-Flute
Single-End
High Speed Steel, Non-Center Cutting
Roughing End Mills

with WELDON Shank
R.H. Cut, R.H. Helix (30 degree)



Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

Combination Shank

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

Coarse Pitch • Bulldog® Roughers

Multi-Flute, Non-Center Cutting High Speed Steel

Weldon's new *UniLead*® precision-manufactured leads on all Bulldog® Rougher end mills

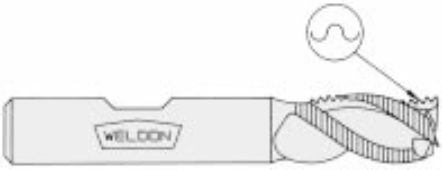
Bridgeport
Single-End
High Speed Steel, Non-Center Cutting
Roughing End Mills
with WELDON Shank
R.H. Cut, R.H. Helix (30 degree)

Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
7/8	3/4	1-7/8	5	4-1/8	WR28-5	64020	64021	64759
1	3/4	3/4	5	3	WR32-5	64024	64025	64761
1	3/4	1-7/8	5	4-1/8	WR32-5A	64026	64027	64762
1	3/4	4	5	6-1/4	WR32-5B	64028	64029	64763
1-1/4	3/4	2	6	4-1/4	WR40-5	64038	64039	64768
1-1/4	3/4	4	6	6-1/4	WR40-5B	64040	64041	64769
1-1/2	3/4	3/4	6	3	WR48-5	64048	64049	64773
1-1/2	3/4	2-1/4	6	4-1/2	WR48-5A	64050	64051	64774
1-1/2	3/4	4	6	6-1/4	WR48-5B	64052	64053	64775

3 Flutes for Aluminum
Single-End
High Speed Steel, Center Cutting
Roughing End Mills
with WELDON Shank
R.H. Cut, R.H. Helix (35 degree)



Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
3/8	3/8	3/4	3	2-1/2	WRF12-2	64302	64303	64346
1/2	1/2	1-1/4	3	3-1/4	WRF16-3A	64304	64305	64348
1/2	1/2	2	3	4	WRF16-3B	64306	64307	64350
5/8	5/8	1-5/8	3	3-3/4	WRF20-4	64308	64309	64352
5/8	5/8	2-1/2	3	4-5/8	WRF20-4B	64310	64311	64354
3/4	3/4	1-5/8	3	3-7/8	WRF24-5	64312	64313	64356
3/4	3/4	3	3	5-1/4	WRF24-5B	64314	64315	64358
7/8	3/4	1-7/8	3	4-1/8	WRF28-5	64316	64317	64360
1	1	2	3	4-1/2	WRF32-7	64318	64319	64362
1	1	3	3	5-1/2	WRF32-7A	64320	64321	64364
1	1	4	3	6-1/2	WRF32-7B	64322	64323	64366
1-1/4	1-1/4	2	3	4-1/2	WRF40-8	64324	64325	64368
1-1/4	1-1/4	3	3	5-1/2	WRF40-8A	64326	64327	64370
1-1/4	1-1/4	4	3	6-1/2	WRF40-8B	64328	64329	64372
1-1/2	1-1/4	2	3	4-1/2	WRF48-8	64330	64331	64374
1-1/2	1-1/4	3	3	5-1/2	WRF48-8A	64332	64333	64376
1-1/2	1-1/4	4	3	6-1/2	WRF48-8B	64334	64335	64378
COMBINATION SHANKS								
2	2	2	3	5-3/4	WRF64-11	64336	64337	64380
2	2	3	3	6-3/4	WRF64-11A	64338	64339	64382
2	2	4	3	7-3/4	WRF64-11B	64340	64341	64384
2	2	6	3	9-3/4	WRF64-11D	64342	64343	64386
2	2	8	3	11-3/4	WRF64-11F	64344	64345	64388

Combination Shank

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Weldon's new *UniLead*® precision-manufactured leads on all Bulldog® Rougher end mills

Multi-Flute, Non-Center Cutting Premium 8% COBALT Steel

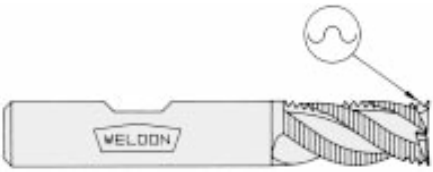
Multi-Flute

Single-End

8% COBALT, Non-Center Cutting

Roughing End Mills

with WELDON Shank
R.H. Cut, R.H. Helix (30 degree)



Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/4	3/8	5/8	3	2-7/16	WRC8-2	64410	64995	64411
5/16	3/8	3/4	3	2-1/2	WRC10-2	64420	64983	64421
3/8	3/8	3/4	4	2-1/2	WRC12-2	64430	64985	64431
1/2	1/2	1	4	3	WRC16-3	64440	64441	64418
1/2	1/2	1-1/4	4	3-1/4	WRC16-3A	64442	64987	64443
1/2	1/2	2	4	4	WRC16-3B	64444	64445	64424
5/8	5/8	1-5/8	4	3-3/4	WRC20-4	64450	64989	64451
5/8	5/8	2-1/2	4	4-5/8	WRC20-4B	64452	64453	64428
3/4	3/4	1-5/8	4	3-7/8	WRC24-5	64460	64991	64461
3/4	3/4	3	4	5-1/4	WRC24-5B	64462	64463	64434
7/8	3/4	1-7/8	5	4-1/8	WRC28-5	64470	64471	64436
7/8	3/4	3-1/2	5	5-3/4	WRC28-5B	64472	64473	64438
1	3/4	1-7/8	5	4-1/8	WRC32-5A	64480	64481	64446
1	3/4	4	5	6-1/4	WRC32-5B	64482	64483	64448
1	1	2	5	4-1/2	WRC32-7	64484	64993	64485
1	1	3	5	5-1/2	WRC32-7A	64486	64487	64456
1	1	4	5	6-1/2	WRC32-7B	64488	64489	64458
1-1/8	1	2	6	4-1/2	WRC36-7	64490	64491	64464
1-1/4	3/4	2	6	4-1/4	WRC40-5	64500	64501	64466
1-1/4	3/4	4	6	6-1/4	WRC40-5B	64502	64503	64468
1-1/4	1-1/4	2	6	4-1/2	WRC40-8	64504	64505	64474
1-1/4	1-1/4	3	6	5-1/2	WRC40-8A	64506	64507	64476
1-1/4	1-1/4	4	6	6-1/2	WRC40-8B	64508	64509	64478
1-1/2	3/4	2-1/4	6	4-1/2	WRC48-5A	64510	64511	64492
1-1/2	3/4	4	6	6-1/4	WRC48-5B	64512	64513	64494
1-1/2	1-1/4	2	6	4-1/2	WRC48-8	64514	64515	64496
1-1/2	1-1/4	3	6	5-1/2	WRC48-8A	64516	64517	64498
1-1/2	1-1/4	4	6	6-1/2	WRC48-8B	64518	64519	64522
1-1/2	1-1/4	6	6	8-1/2	WRC48-8C	64520	64521	64524
1-3/4	1-1/4	2-1/2	6	5	WRC56-8	64530	64531	64526
1-3/4	1-1/4	4-1/2	6	7	WRC56-8A	64532	64533	64528
2	1-1/4	2	8	4-1/2	WRC64-8	64540	64541	64534
2	1-1/4	4	8	6-1/2	WRC64-8A	64542	64543	64536
COMBINATION SHANKS								
2	2	3	8	6-3/4	WRC64-11A	64544	64545	64538
2	2	4	8	7-3/4	WRC64-11B	64546	64547	64580
2	2	5	8	8-3/4	WRC64-11C	64548	64549	64582
2	2	6	8	9-3/4	WRC64-11D	64550	64551	64584
2	2	7	8	10-3/4	WRC64-11E	64552	64553	64586
2	2	8	8	11-3/4	WRC64-11F	64554	64555	64588
2	2	10	8	13-3/4	WRC64-11G	64556	64557	64590
2	2	12	8	15-3/4	WRC64-11H	64558	64559	64592
2-1/2	2	4	8	7-3/4	WRC80-11	64560		
2-1/2	2	6	8	9-3/4	WRC80-11A	64562		
2-1/2	2	8	8	11-3/4	WRC80-11B	64564		
2-1/2	2	10	8	13-3/4	WRC80-11C	64566		
2-1/2	2	12	8	15-3/4	WRC80-11D	64568		
3	2-1/2	4	10	7-3/4	WRC96-12	64570		
3	2-1/2	6	10	9-3/4	WRC96-12A	64572		
3	2-1/2	8	10	11-3/4	WRC96-12B	64574		
3	2-1/2	10	10	13-3/4	WRC96-12C	64576		
3	2-1/2	12	10	15-3/4	WRC96-12D	64578		

Combination Shank

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

Coarse Pitch • Bulldog® Roughers

Premium 8% COBALT Steel

Weldon's new *UniLead*® precision-manufactured leads on all Bulldog® Rougher end mills

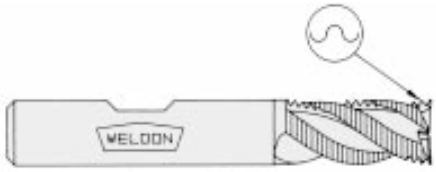
Multi-Flute

Single-End

8% COBALT, Center Cutting

Roughing End Mills

with WELDON Shank
R.H. Cut, R.H. Helix (30 degree)



Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	1-1/4	4	3-1/4	WRCC16-3A	64602	64603	64642
1/2	1/2	2	4	4	WRCC16-3B	64604	64605	64644
5/8	5/8	1-5/8	4	3-3/4	WRCC20-4	64606	64607	64646
5/8	5/8	2-1/2	4	4-5/8	WRCC20-4B	64608	64609	64648
3/4	3/4	1-5/8	4	3-7/8	WRCC24-5	64610	64611	64650
3/4	3/4	3	4	5-1/4	WRCC24-5B	64612	64613	64652
7/8	3/4	1-7/8	5	4-1/8	WRCC28-5	64614	64615	64654
1	1	2	5	4-1/2	WRCC32-7	64616	64617	64656
1	1	3	5	5-1/2	WRCC32-7A	64618	64619	64658
1	1	4	5	6-1/2	WRCC32-7B	64620	64621	64660
1-1/4	1-1/4	2	6	4-1/2	WRCC40-8	64622	64623	64662
1-1/4	1-1/4	3	6	5-1/2	WRCC40-8A	64624	64625	64664
1-1/4	1-1/4	4	6	6-1/2	WRCC40-8B	64626	64627	64666
1-1/2	1-1/4	2	6	4-1/2	WRCC48-8	64628	64629	64668
1-1/2	1-1/4	3	6	5-1/2	WRCC48-8A	64630	64631	64670
1-1/2	1-1/4	4	6	6-1/2	WRCC48-8B	64632	64633	64672
2	2*	2	8	5-3/4	WRCC64-11	64634	64635	64674
2	2*	3	8	6-3/4	WRCC64-11A	64636	64637	64676
2	2*	4	8	7-3/4	WRCC64-11B	64638	64639	64678
2	2*	6	8	9-3/4	WRCC64-11D	64640	64641	64680

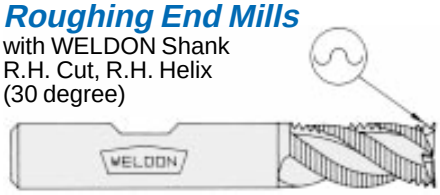
Bridgeport

Single-End

8% COBALT, Non-Center Cutting

Roughing End Mills

with WELDON Shank
R.H. Cut, R.H. Helix
(30 degree)



Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
7/8	3/4	1-7/8	5	4-1/8	WRC28-5	64470	64471	64436
1	3/4	1-7/8	5	4-1/8	WRC32-5A	64480	64481	64446
1	3/4	4	5	6-1/4	WRC32-5B	64482	64483	64448
1-1/4	3/4	2	6	4-1/4	WRC40-5	64500	64501	64466
1-1/4	3/4	4	6	6-1/4	WRC40-5B	64502	64503	64468
1-1/2	3/4	2-1/4	6	4-1/2	WRC48-5A	64510	64511	64492
1-1/2	3/4	4	6	6-1/4	WRC48-5B	64512	64513	64494

Multi-Flute, Ball-End

Single-End

8% COBALT, Center Cutting

Roughing End Mills

with WELDON Shank
R.H. Cut, R.H. Helix
(30 degree)

Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

*All 2" shanks are combination style.

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	1-1/4	4	3-1/4	WRCR16-3A	64702	64703	64730
1/2	1/2	2	4	4	WRCR16-3B	64704	64705	64731
5/8	5/8	1-5/8	4	3-3/4	WRCR20-4	64706	64707	64732
5/8	5/8	2-1/2	4	4-5/8	WRCR20-4B	64708	64709	64733
3/4	3/4	1-5/8	4	3-7/8	WRCR24-5	64710	64711	64734
3/4	3/4	3	4	5-1/4	WRCR24-5B	64712	64713	64735
1	1	2	5	4-1/2	WRCR32-7	64714	64715	64736
1	1	4	5	6-1/2	WRCR32-7B	64716	64717	64737
1-1/4	1-1/4	2	6	4-1/2	WRCR40-8	64718	64719	64738
1-1/4	1-1/4	4	6	6-1/2	WRCR40-8B	64720	64721	64739
1-1/2	1-1/4	2	6	4-1/2	WRCR48-8	64722	64723	64740
1-1/2	1-1/4	4	6	6-1/2	WRCR48-8B	64724	64725	64741
2	2*	4	8	7-3/4	WRCR64-11B	64726	64727	64742
2	2*	6	8	9-3/4	WRCR64-11D	64728	64729	64743

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Weldon's new *UniLead*® precision-manufactured leads on all Bulldog® Rougher end mills

Multi-Flute, Non-Center Cutting PM Vanadium Steel End Mills

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	1-1/4	4	3-1/4	WRT16-3A	64802	64803	64858
1/2	1/2	2	4	4	WRT16-3B	64804	64805	64859
5/8	5/8	1-5/8	4	3-3/4	WRT20-4	64806	64807	64860
5/8	5/8	2-1/2	4	4-5/8	WRT20-4B	64808	64809	64861
3/4	3/4	1-5/8	4	3-7/8	WRT24-5	64810	64811	64862
3/4	3/4	3	4	5-1/4	WRT24-5B	64812	64813	64863
7/8	3/4	1-7/8	5	4-1/8	WRT28-5	64814	64815	64864
7/8	3/4	3-1/2	5	5-3/4	WRT28-5B	64816	64817	64865
1	1	2	5	4-1/2	WRT32-7	64818	64819	64866
1	1	4	5	6-1/2	WRT32-7B	64820	64821	64867
1-1/8	1	2	6	4-1/2	WRT36-7	64822	64823	64868
1-1/4	1-1/4	2	6	4-1/2	WRT40-8	64824	64825	64869
1-1/4	1-1/4	4	6	6-1/2	WRT40-8B	64826	64827	64870
1-1/2	1-1/4	2	6	4-1/2	WRT48-8	64828	64829	64871
1-1/2	1-1/4	4	6	6-1/2	WRT48-8B	64830	64831	64872
1-3/4	1-1/4	2-1/2	6	5	WRT56-8	64832	64833	64873
1-3/4	1-1/4	4-1/2	6	7	WRT56-8A	64834	64835	64874
2	1-1/4	2	8	4-1/2	WRT64-8	64836	64837	64875
2	1-1/4	4	8	6-1/2	WRT64-8A	64838	64839	64876

COMBINATION SHANKS

2	2	3	8	6-3/4	WRT64-11A	64840	64841	64877
2	2	4	8	7-3/4	WRT64-11B	64842	64843	64878
2	2	5	8	8-3/4	WRT64-11C	64844	64845	64879
2	2	6	8	9-3/4	WRT64-11D	64846	64847	64880
2	2	7	8	10-3/4	WRT64-11E	64848	64849	64881
2	2	8	8	11-3/4	WRT64-11F	64850	64851	64882
2-1/2	2	4	8	7-3/4	WRT80-11	64852		
2-1/2	2	6	8	9-3/4	WRT80-11A	64854		
2-1/2	2	8	8	11-3/4	WRT80-11B	64856		

Multi-Flute
Single-End
PM Vanadium Steel, Non-Center Cutting
Roughing End Mills

with WELDON Shank
R.H. Cut, R.H. Helix (30 degree)

Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

Combination Shank

UniLead® Eliminates costly CNC Reprogramming And Repetitive Sine Bar Set-Ups When Resharpening End Mills

The development of *UniLead*, while it was theoretically possible, was very difficult to achieve in the real world of manufacturing. It has been made possible through Weldon's substantial investments in computer controlled equipment.

UniLead is not a measured lead, but a lead manufactured to a specific design criteria. All Weldon CNC end mills of the same diameter and helix angle are manufactured with the same lead, tool to tool…lot to lot.

This unique feature permits the use of only one lead per diameter and helix to be programmed into CNC machines and single set ups with sine bar resharpening equipment, thus eliminating manual measuring, constant reprogramming and equipment set ups.

Until The Weldon Tool Company recently introduced *UniLead*, manufacturers of end mills had permitted a deviation of as much as +/– 1.5 degrees in the helix angle forming the flutes of these products. Consequently, the differences between individual tools caused problems for the user when it came time to resharpen the end mills using CNC or sine bar resharpening equipment. The problems revolve around lead, defined by engineers as the axial advance of a helical cutting edge in one turn around the axis.

This variation among tools means there are literally hundreds of different leads among these products which translates into a vast amount of time when preparing to resharpen a tool.

New CNC end mills from The Weldon Tool Company with *UniLead* precision and marked leads solve these problems by completely eliminating any variance. With Weldon, the customer is guaranteed that all end mills of the same diameter and helix angle have identical leads. *UniLead* markings are published so that the measurements can be programmed, sorted and recalled each time a *UniLead* end mills needs resharpening.

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

Fine Pitch • Bulldog® Roughers

Premium 8% COBALT Steel

Weldon's new *UniLead*® precision-manufactured leads on all Bulldog® Rougher end mills

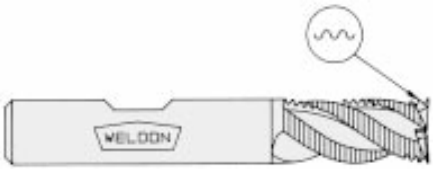
Multi-Flute

Single-End

8% COBALT, Non-Center Cutting

Roughing End Mills

with WELDON Shank
R.H. Cut, R.H. Helix (30 degree)



Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

Combination Shank

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/4	3/8	5/8	3	2-7/16	WRCF8-2	64902	64903	64901
5/16	3/8	3/4	3	2-1/2	WRCF10-2	64904	64905	64971
3/8	3/8	3/4	4	2-1/2	WRCF12-2	64906	64973	64907
1/2	1/2	1-1/4	4	3-1/4	WRCF16-3A	64908	64975	64909
1/2	1/2	2	4	4	WRCF16-3B	64910	64911	64412
5/8	5/8	1-5/8	4	3-3/4	WRCF20-4	64912	64977	64913
5/8	5/8	2-1/2	4	4-5/8	WRCF20-4B	64914	64915	64966
3/4	3/4	1-5/8	4	3-7/8	WRCF24-5	64916	64979	64917
3/4	3/4	3	4	5-1/4	WRCF24-5B	64918	64919	64967
7/8	3/4	1-7/8	5	4-1/8	WRCF28-5	64920	64921	64968
7/8	3/4	3-1/2	5	5-3/4	WRCF28-5B	64922	64923	64969
1	1	2	5	4-1/2	WRCF32-7	64924	64981	64925
1	1	3	5	5-1/2	WRCF32-7A	64926	64927	64970
1	1	4	5	6-1/2	WRCF32-7B	64928	64929	64992
1-1/8	1	2	6	4-1/2	WRCF36-7	64930	64931	64972
1-1/4	1-1/4	2	6	4-1/2	WRCF40-8	64932	64933	64994
1-1/4	1-1/4	3	6	5-1/2	WRCF40-8A	64934	64935	64974
1-1/4	1-1/4	4	6	6-1/2	WRCF40-8B	64936	64937	64996
1-1/2	1-1/4	2	6	4-1/2	WRCF48-8	64938	64939	64976
1-1/2	1-1/4	3	6	5-1/2	WRCF48-8A	64940	64941	64853
1-1/2	1-1/4	4	6	6-1/2	WRCF48-8B	64942	64943	64978
1-1/2	1-1/4	6	6	8-1/2	WRCF48-8C	64944	64945	64980
1-3/4	1-1/4	2-1/2	6	5	WRCF56-8	64946	64947	64855
1-3/4	1-1/4	4-1/2	6	7	WRCF56-8A	64948	64949	64982
2	1-1/4	2	8	4-1/2	WRCF64-8	64950	64951	64984
2	1-1/4	4	8	6-1/2	WRCF64-8A	64952	64953	64998
COMBINATION SHANKS								
2	2	3	8	6-3/4	WRCF64-11A	64954	64955	64857
2	2	4	8	7-3/4	WRCF64-11B	64956	64957	64986
2	2	5	8	8-3/4	WRCF64-11C	64958	64959	64999
2	2	6	8	9-3/4	WRCF64-11D	64960	64961	64988
2	2	7	8	10-3/4	WRCF64-11E	64962	64963	64990
2	2	8	8	11-3/4	WRCF64-11F	64964	64965	65000

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

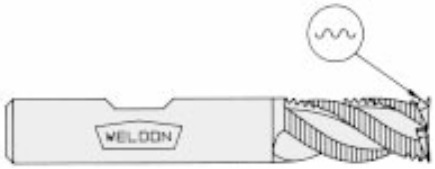
Weldon's new *UniLead*® precision-manufactured leads on all Bulldog® Rougher end mills

Multi-Flute, Center Cutting Premium 8% COBALT Steel

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	1-1/4	4	3-1/4	WRCCF16-3A	65002	65003	65042
1/2	1/2	2	4	4	WRCCF16-3B	65004	65005	65044
5/8	5/8	1-5/8	4	3-3/4	WRCCF20-4	65006	65007	65046
5/8	5/8	2-1/2	4	4-5/8	WRCCF20-4B	65008	65009	65048
3/4	3/4	1-5/8	4	3-7/8	WRCCF24-5	65010	65011	65050
3/4	3/4	3	4	5-1/4	WRCCF24-5B	65012	65013	65052
7/8	3/4	1-7/8	5	4-1/8	WRCCF28-5	65014	65015	65054
1	1	2	5	4-1/2	WRCCF32-7	65016	65017	65056
1	1	3	5	5-1/2	WRCCF32-7A	65018	65019	65058
1	1	4	5	6-1/2	WRCCF32-7B	65020	65021	65060
1-1/4	1-1/4	2	6	4-1/2	WRCCF40-8	65022	65023	65062
1-1/4	1-1/4	3	6	5-1/2	WRCCF40-8A	65024	65025	65064
1-1/4	1-1/4	4	6	6-1/2	WRCCF40-8B	65026	65027	65066
1-1/2	1-1/4	2	6	4-1/2	WRCCF48-8	65028	65029	65068
1-1/2	1-1/4	3	6	5-1/2	WRCCF48-8A	65030	65031	65070
1-1/2	1-1/4	4	6	6-1/2	WRCCF48-8B	65032	65033	65072

Multi-Flute
Single-End
8% COBALT, Center Cutting
Roughing End Mills

with WELDON Shank
R.H. Cut, R.H. Helix (30 degree)



Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

COMBINATION SHANKS

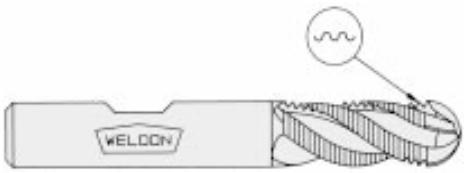
2	2	2	8	5-3/4	WRCCF64-11	65034	65035	65074
2	2	3	8	6-3/4	WRCCF64-11A	65036	65037	65076
2	2	4	8	7-3/4	WRCCF64-11B	65038	65039	65078
2	2	6	8	9-3/4	WRCCF64-11D	65040	65041	65080

Combination Shank

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part Number	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/2	1/2	1-1/4	4	3-1/4	WRCRF16-3A	64202	64203	64218
5/8	5/8	1-5/8	4	3-3/4	WRCRF20-4	64204	64205	64220
3/4	3/4	1-5/8	4	3-7/8	WRCRF24-5	64206	64207	64222
1	1	2	5	4-1/2	WRCRF32-7	64208	64209	64224
1-1/4	1-1/4	2	6	4-1/2	WRCRF40-8	64210	64211	64226
1-1/2	1-1/4	2	6	4-1/2	WRCRF48-8	64212	64213	64228
2	2*	4	8	7-3/4	WRCRF64-11B	64214	64215	64230
2	2*	6	8	9-3/4	WRCRF64-11D	64216	64217	64232

Multi-Flute, Ball-End
Single-End
8% COBALT, Center Cutting
Roughing End Mills

with WELDON Shank
R.H. Cut, R.H. Helix (30 degree)



Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

*All 2" shanks are combination style.

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

Multi-Flute, Center Cutting Premium 8% COBALT Steel Stub-Length Roughing

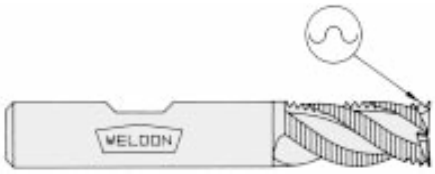
Weldon's new *UniLead*® precision-manufactured leads on all Bulldog® Rougher end mills

These center-cutting, stub length roughing end mills in diameters from 1/4" to 1-1/4" perform plunge and traverse cuts up to 1-1/4" deep. They are designed for use in roughing operations before finish-cutting with standard Weldon end mills. This extends the life of the finish-cutting end mill and helps ensure the precision of the final cut.

Deeper cuts, faster feed rates
These end mills can take deeper cuts at faster feed rates than conventional tools because their stub-length reduces tool deflection during the cut, reducing overall cutting time. They feature knuckle-form chip breakers that produce small, easily removed chips. Two chip-breaker configurations are available: coarse pitch for general purpose roughing, and fine pitch for high-speed roughing of medium-hardness alloys such as Inconel, Waspaloy, Hastelloy, and stainless.

Stub Length
Multi-Flute, Coarse Pitch, Single End 8% COBALT, Center Cutting *Roughing End Mills*

with WELDON Shank
R.H. Cut, R.H. Helix (30 degree)



Cutting Diameter Tolerance is + .005
– .000

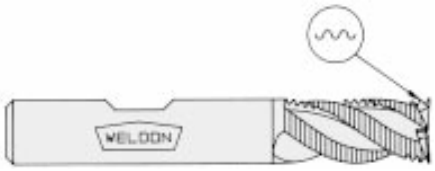
Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part No. (Crs. Pitch)	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/4	3/8	1/4	3	2-1/16	WRCCS8-2	64108	64109	64663
3/8	3/8	3/8	4	2-5/32	WRCCS12-2	64112	64113	64651
1/2	1/2	1/2	4	2-1/2	WRCCS16-3	64116	64117	64653
5/8	5/8	5/8	4	2-3/4	WRCCS20-4	64120	64121	64655
3/4	3/4	3/4	4	2-7/8	WRCCS24-5	64124	64125	64657
1	1	1	5	3-1/2	WRCCS32-7	64132	64133	64659
1-1/4	1-1/4	1-1/4	6	3-3/4	WRCCS40-8	64140	64141	64661

Chip breakers have knuckle-form.
Flute geometry and end teeth are Weldon standard.

Stub Length
Multi-Flute, Fine Pitch, Single End 8% COBALT, Center Cutting *Roughing End Mills*

with WELDON Shank
R.H. Cut, R.H. Helix (30 degree)



Cutting Diameter Tolerance is + .005
– .000

Two screw drive on 7/8" shanks and larger

Diameter of Mill	Diameter of Shank	Length of Cut	Number of Flutes	Overall Length	Part No. (Fine Pitch)	Uncoated EDP No.	TiN EDP No.	TiCN EDP No.
1/4	3/8	1/4	3	2-1/16	WRCCFS8-2	64158	64159	64180
3/8	3/8	3/8	4	2-5/32	WRCCFS12-2	64162	64163	64182
1/2	1/2	1/2	4	2-1/2	WRCCFS16-3	64166	64167	64184
5/8	5/8	5/8	4	2-3/4	WRCCFS20-4	64168	64169	64186
3/4	3/4	3/4	4	2-7/8	WRCCFS24-5	64170	64171	64188
1	1	1	5	3-1/2	WRCCFS32-7	64172	64173	64190
1-1/4	1-1/4	1-1/4	6	3-3/4	WRCCFS40-8	64174	64175	64192

Chip breakers have knuckle-form.
Flute geometry and end teeth are Weldon standard.

NOTE: See page 101 for specific cutting diameter tolerances.

For Adapters and Holders turn to pages 84 to 89.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Shell End Mills

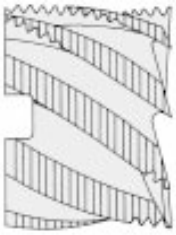
Diameter	Length of Cut	Hole Diameter	Drive Slot Width	Drive Slot Depth	No. of Teeth	Part No.	Uncoated EDP No.
2	2	3/4	5/16	3/16	8	SR200-5	65202
2-1/4	2	1	3/8	7/32	8	SR225-7	65204
2-1/2	2	1	3/8	7/32	8	SR250-7	65206
2-3/4	2	1	3/8	7/32	8	SR275-7	65208
3	2	1-1/4	1/2	9/32	10	SR300-8	65210
3-1/2	2	1-1/4	1/2	9/32	10	SR350-8	65212
4	2-1/4	1-1/2	5/8	3/8	12	SR400-9	65214
4-1/2	2-1/4	1-1/2	5/8	3/8	14	SR450-9	65216
5	2-1/4	1-1/2	5/8	3/8	14	SR500-9	65218
5-1/2	2-1/4	2	3/4	7/16	16	SR550-10	65220
6	2-1/4	2	3/4	7/16	16	SR600-10	65222

High Speed Steel

Roughing End Mills

R.H. Cut, R.H. Helix (20 degree)

These mills are for slabbing or for surfacing cuts, either end milling or face milling.



Cutting Diameter Tolerance is + .015 – .000

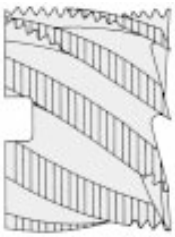
Diameter	Length of Cut	Hole Diameter	Drive Slot Width	Drive Slot Depth	No. of Teeth	Part No.	Uncoated EDP No.
2	2	3/4	5/16	3/16	8	SRC200-5	65110
2-1/4	2	1	3/8	7/32	8	SRC225-7	65112
2-1/2	2	1	3/8	7/32	8	SRC250-7	65114
2-3/4	2	1	3/8	7/32	8	SRC275-7	65116
3	2	1-1/4	1/2	9/32	10	SRC300-8	65118
3-1/2	2	1-1/4	1/2	9/32	10	SRC350-8	65120
4	2-1/4	1-1/2	5/8	3/8	12	SRC400-9	65122
4-1/2	2-1/4	1-1/2	5/8	3/8	14	SRC450-9	65124
5	2-1/4	1-1/2	5/8	3/8	14	SRC500-9	65126
5-1/2	2-1/4	2	3/4	7/16	16	SRC550-10	65128
6	2-1/4	2	3/4	7/16	16	SRC600-10	65130

Premium 8% COBALT Steel

Roughing End Mills

R.H. Cut, R.H. Helix (20 degree)

These mills are for slabbing or for surfacing cuts, either end milling or face milling.



Cutting Diameter Tolerance is + .015 – .000

NOTE: See page 101 for specific cutting diameter tolerances.

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

For Adapters and Holders turn to pages 84 to 89.

Special End Mills

Ordering Suggestions

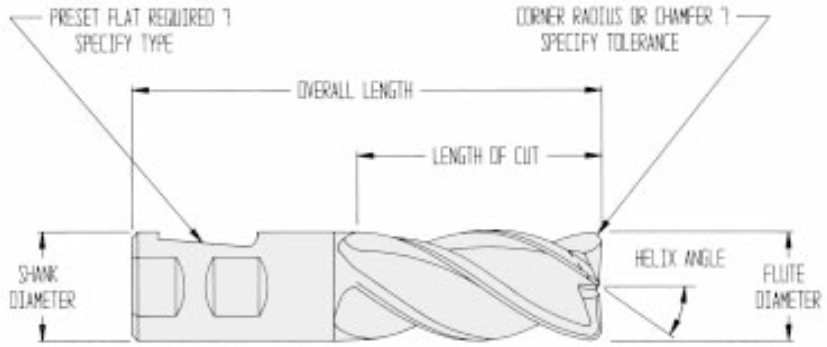
Much emphasis is placed on fast deliveries of special end mills, which makes it increasingly important to avoid delays, especially those which can be avoided so easily. We refer specifically to delays caused when orders or inquiries for special end mills simply do not show enough information to enable us to proceed with manufacturing or to quote intelligently.

NOTE: Each inquiry must contain the following vital information:

1. Is this a repeat inquiry/order? Yes No
   If yes, please identify by customer part #, by Weldon B/P# or W# _____
2. Single-End or Double-End _____
3. Number of Flutes _____
4. Cutting Diameter and Tolerance _____
5. Length of Cut _____
6. Overall Length _____
7. Shank Diameter and Type _____
8. Hand of Cut and Helix Angle _____
9. Type of End—Square, Cut to Center or Ball _____

   Corner Radius and Tolerance _____

   Corner Chamfer—Angle, Length and Tolerance _____
10. Type and Hardness of Material to be Milled _____
11. Cutting Tool Material—High Speed Steel or Premium Cobalt Steel _____
12. Overall Length will be calculated from Weldon standard shank lengths unless otherwise specified _____
13. Quantity Required _____ Annual Usage _____
14. Quantity Shipping Variation is +/-10% Unless Otherwise Specified _____
15. Style of Special End Mill—Conventional, Tapered or Crest-Kut _____
16. Comments: _____



All orders or inquiries for special end mills must show the customer's name. This important procedure makes for much faster reference should it become necessary.

If you want an immediate quote on specials, FAX your specifications to us... FAX: (216) 642-5488.

NOTE: For special tapered shank end mills, specify size of tapered shank, tang end or draw bar type and size of tapped hole.

Ultra-Kut®

HIGH PERFORMANCE, APPLICATION SPECIFIC TAPS

Specifically engineered to eliminate confusion and field testing in H limits to obtain class 2B or 3B fit. Engineered to run at optimum speeds and feeds that allow better and faster parts produced.

SPIRAL POINTED TAPS 68

SPIRAL FLUTED TAPS 69

STRAIGHT FLUTED TAPS 73

FORMING TAPS 75

S.T.I. TAPS 76

OVERSIZE TAPS 79

TAPER PIPE TAPS 80

Ultra-Kut®

Standard Spiral Pointed Taps

This geometry is suitable for high-strength steels ranging from 101,000 psi to 203,000 psi (up to Rc 44), alloy steels, tool steels and ANSI Series 200, 300, 400 and 500 stainless steels.

Ultra-Kut 100
Premium High Speed Steel

Chamfer: 4 to 5 threads
ANSI Length, ANSI Shank

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	Nitride EDP #
4	40	2	UNC	2B	67100
5	40	3	UNC	2B	67102
6	32	3	UNC	2B	67104
6	40	3	UNF	2B	67126
8	32	3	UNC	2B	67106
8	36	3	UNF	2B	67128
10	24	3	UNC	2B	67108
10	32	3	UNF	2B	67130
1/4	20	3	UNC	2B	67110
1/4	28	3	UNF	2B	67132
5/16	18	3	UNC	2B	67112
5/16	24	3	UNF	2B	67134
3/8	16	3	UNC	2B	67114
3/8	24	4	UNF	2B	67136
7/16	14	3	UNC	2B	67116
7/16	20	3	UNF	2B	67138
1/2	13	3	UNC	2B	67118
1/2	20	3	UNF	2B	67140
9/16	12	3	UNC	2B	67120
9/16	18	3	UNF	2B	67142
5/8	11	3	UNC	2B	67122
5/8	18	3	UNF	2B	67144
3/4	10	3	UNC	2B	67124
3/4	16	4	UNF	2B	67146

Ultra-Kut 110
Premium High Speed Steel

Chamfer: 4 to 5 threads
ANSI Length, ANSI Shank

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	Nitride EDP #
10	32	3	UNF	3B	67162
1/4	20	3	UNC	3B	67150
1/4	28	3	UNF	3B	67164
5/16	18	3	UNC	3B	67152
5/16	24	3	UNF	3B	67166
3/8	16	3	UNC	3B	67154
3/8	24	4	UNF	3B	67168
7/16	14	3	UNC	3B	67156
7/16	20	3	UNF	3B	67170
1/2	13	3	UNC	3B	67158
1/2	20	3	UNF	3B	67172
9/16	18	3	UNF	3B	67174
5/8	11	3	UNC	3B	67160
5/8	18	3	UNF	3B	67176
3/4	16	4	UNF	3B	67178

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Standard 39° Right Hand Spiral Fluted Taps

This geometry is suitable for steels ranging from 58,000 psi to 116,000 psi (up to Rc 23), structural steels, free machining steels, free machining stainless steel and leaded steels as well as aluminum, zinc, magnesium and copper alloys.

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	EDP #	TiN EDP #
4	40	2	UNC	2B	67200	67201
5	40	3	UNC	2B	67202	67203
6	32	3	UNC	2B	67204	67205
6	40	3	UNF	2B	67226	67227
8	32	3	UNC	2B	67206	67207
8	36	3	UNF	2B	67228	67229
10	24	3	UNC	2B	67208	67209
10	32	3	UNF	2B	67230	67231
1/4	20	3	UNC	2B	67210	67211
1/4	28	3	UNF	2B	67232	67233
5/16	18	3	UNC	2B	67212	67213
5/16	24	3	UNF	2B	67234	67235
3/8	16	3	UNC	2B	67214	67215
3/8	24	3	UNF	2B	67236	67237
7/16	14	4	UNC	2B	67216	67217
7/16	20	4	UNF	2B	67238	67239
1/2	13	4	UNC	2B	67218	67219
1/2	20	5	UNF	2B	67240	67241
9/16	12	4	UNC	2B	67220	67221
9/16	18	5	UNF	2B	67242	67243
5/8	11	4	UNC	2B	67222	67223
5/8	18	5	UNF	2B	67244	67245
3/4	10	4	UNC	2B	67224	67225
3/4	16	5	UNF	2B	67246	67247

Ultra-Kut 200
Premium High Speed Steel

Chamfer: 1.5 to 2 threads
ANSI Length, ANSI Shank

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	EDP #	TiN EDP #
10	32	3	UNF	3B	67258	67259
1/4	20	3	UNC	3B	67248	67249
1/4	28	3	UNF	3B	67260	67261
5/16	18	3	UNC	3B	67250	67251
5/16	24	3	UNF	3B	67262	67263
3/8	16	3	UNC	3B	67252	67253
3/8	24	3	UNF	3B	67264	67265
7/16	14	4	UNC	3B	67254	67255
7/16	20	4	UNF	3B	67266	67267
1/2	13	4	UNC	3B	67256	67257
1/2	20	5	UNF	3B	67268	67269
9/16	18	5	UNF	3B	67270	67271
5/8	18	5	UNF	3B	67272	67273
3/4	16	5	UNF	3B	67274	67275

Ultra-Kut 210
Premium High Speed Steel

Chamfer: 1.5 to 2 threads
ANSI Length, ANSI Shank

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Ultra-Kut®

ISO Metric Taps Spiral Pointed Taps

The cutting edge geometry of these taps are for working in heat-resistant stainless steel materials. The optimized edge geometry on this style tap allows it to be used for A.I.S.I. 200, 300, 400 and 500 SS, monels, inconels, hastelloys, renes and Waspaloy. Other applications allow this style tap to be used in machining hardened and tempered steels and tool steels with high tensile strengths ranging from 101,000 to 203,000 psi (207 BHN-44 Rc) as well as tough bronze and electrolytic copper.

Ultra-Kut 120
Premium High Speed Steel

Chamfer: 4 to 5 threads
ANSI Length, ANSI Shank

Size	Pitch mm	FLT	MF/MC	Class Of Fit	Nitride EDP #
M4	.70	3	MC	6H	67701
M5	.80	3	MC	6H	67703
M6	1.00	3	MC	6H	67705
M8	1.25	3	MC	6H	67707
M10	1.00	3	MF	6H	67721
M10	1.25	3	MF	6H	67723
M10	1.50	3	MC	6H	67709
M12	1.50	3	MF	6H	67725
M12	1.75	3	MC	6H	67711
M14	1.50	3	MF	6H	67727
M14	2.00	3	MC	6H	67713
M16	2.00	3	MC	6H	67715
M20	2.50	3	MC	6H	67717
M24	3.00	3	MC	6H	67719

ISO Metric 39° Right Hand Spiral Fluted Taps

Special cutting geometry, rake and relief angles for machining materials such as aluminum alloy castings, stainless steel, acid resistant steels, heat-treated parts, alloyed steel castings, tool steels, and special CPM10V material.

Ultra-Kut 220
Premium High Speed Steel

Chamfer: 2 to 3 threads
ANSI Length, ANSI Shank

Size	Pitch mm	FLT	MF/MC	Class Of Fit	EDP #	TiN EDP #
M4	.70	3	MC	6H	67728	67729
M5	.80	3	MC	6H	67730	67731
M6	1.00	3	MC	6H	67732	67733
M8	1.25	3	MC	6H	67734	67735
M10	1.00	3	MF	6H	67748	67749
M10	1.25	3	MF	6H	67750	67751
M10	1.50	3	MC	6H	67736	67737
M12	1.50	4	MF	6H	67752	67753
M12	1.75	3	MC	6H	67738	67739
M14	1.50	4	MF	6H	67754	67755
M14	2.00	3	MC	6H	67740	67741
M16	2.00	3	MC	6H	67742	67743
M20	2.50	3	MC	6H	67744	67745
M24	3.00	4	MC	6H	67746	67747

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Standard 12° Left Hand Spiral Fluted Taps

This geometry is suitable for titanium alloys, precipitation hardening stainless steels, AMPCO bronze and beryllium copper as well as high-temperature alloys such as Inconel, Waspaloy, Hastelloy and Rene.

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	Nitride EDP #
4	40	2	UNC	2B	67300
5	40	2	UNC	2B	67302
6	32	3	UNC	2B	67304
6	40	3	UNF	2B	67326
8	32	3	UNC	2B	67306
8	36	3	UNF	2B	67328
10	24	3	UNC	2B	67308
10	32	3	UNF	2B	67330
1/4	20	3	UNC	2B	67310
1/4	28	3	UNF	2B	67332
5/16	18	3	UNC	2B	67312
5/16	24	3	UNF	2B	67334
3/8	16	3	UNC	2B	67314
3/8	24	3	UNF	2B	67336
7/16	14	3	UNC	2B	67316
7/16	20	3	UNF	2B	67338
1/2	13	3	UNC	2B	67318
1/2	20	3	UNF	2B	67340
9/16	12	3	UNC	2B	67320
9/16	18	3	UNF	2B	67342
5/8	11	3	UNC	2B	67322
5/8	18	3	UNF	2B	67344
3/4	10	3	UNC	2B	67324
3/4	16	4	UNF	2B	67346

Ultra-Kut 300
Premium High Speed Steel

Chamfer: 4 to 5 threads
ANSI Length, ANSI Shank

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	Nitride EDP #
10	32	3	UNF	3B	67960
1/4	20	3	UNC	3B	67948
1/4	28	3	UNF	3B	67962
5/16	18	3	UNC	3B	67950
5/16	24	3	UNF	3B	67964
3/8	16	3	UNC	3B	67952
3/8	24	3	UNF	3B	67966
7/16	14	3	UNC	3B	67954
7/16	20	3	UNF	3B	67968
1/2	13	3	UNC	3B	67956
1/2	20	3	UNF	3B	67970
9/16	18	3	UNF	3B	67958
5/8	11	3	UNC	3B	67972
5/8	18	3	UNF	3B	67974
3/4	16	4	UNF	3B	67976

Ultra-Kut 310
Premium High Speed Steel

Chamfer: 4 to 5 threads
ANSI Length, ANSI Shank

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Ultra-Kut®

Standard 15° Right Hand Spiral Fluted Taps

This geometry is suitable for high-strength steels ranging from 102,000 psi to 203,000 psi (up to Rc 44), alloy steels, tool steels and ANSI Series 200, 300, 400 and 500 stainless steels, AMPCO bronze and beryllium copper as well as titanium alloys and high-temperature alloys such alloys such as Inconel, Waspaloy, Hastelloy and Rene.

Ultra-Kut 400
Premium High Speed Steel

Chamfer: 2 to 3 threads
ANSI Length, ANSI Shank

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	Nitride EDP #
4	40	2	UNC	2B	67400
5	40	2	UNC	2B	67402
6	32	3	UNC	2B	67404
6	40	3	UNF	2B	67426
8	32	3	UNC	2B	67406
8	36	3	UNF	2B	67428
10	24	3	UNC	2B	67408
10	32	3	UNF	2B	67430
1/4	20	3	UNC	2B	67410
1/4	28	3	UNF	2B	67432
5/16	18	3	UNC	2B	67412
5/16	24	3	UNF	2B	67434
3/8	16	3	UNC	2B	67414
3/8	24	3	UNF	2B	67436
7/16	14	3	UNC	2B	67416
7/16	20	3	UNF	2B	67438
1/2	13	3	UNC	2B	67418
1/2	20	3	UNF	2B	67440
9/16	12	3	UNC	2B	67420
9/16	18	3	UNF	2B	67442
5/8	11	3	UNC	2B	67422
5/8	18	3	UNF	2B	67444
3/4	10	3	UNC	2B	67424
3/4	16	4	UNF	2B	67446

Ultra-Kut 410
Premium High Speed Steel

Chamfer: 2 to 3 threads
ANSI Length, ANSI Shank

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	Nitride EDP #
10	32	3	UNF	3B	67492
1/4	20	3	UNC	3B	67448
1/4	28	3	UNF	3B	67493
5/16	18	3	UNC	3B	67450
5/16	24	3	UNF	3B	67494
3/8	16	3	UNC	3B	67452
3/8	24	3	UNF	3B	67495
7/16	14	3	UNC	3B	67454
7/16	20	3	UNF	3B	67496
1/2	13	3	UNC	3B	67456
1/2	20	3	UNF	3B	67497
9/16	18	3	UNF	3B	67498
5/8	11	3	UNC	3B	67458
5/8	18	3	UNF	3B	67499
3/4	16	4	UNF	3B	67485

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Standard Straight Fluted Taps

This geometry is suitable for materials such as cast irons, ductile iron, Meehanite iron, heat-treated steels and powder metal as well as bronze, reinforced plastics, graphite and machinable ceramics.

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	Nitride EDP #
4	40	3	UNC	2B	67500
5	40	3	UNC	2B	67502
6	32	3	UNC	2B	67504
6	40	3	UNF	2B	67556
8	32	3	UNC	2B	67506
8	36	3	UNF	2B	67558
10	24	3	UNC	2B	67508
10	32	3	UNF	2B	67560
1/4	20	3	UNC	2B	67510
1/4	28	3	UNF	2B	67562
5/16	18	3	UNC	2B	67512
5/16	24	3	UNF	2B	67564
3/8	16	3	UNC	2B	67514
3/8	24	4	UNF	2B	67566
7/16	14	3	UNC	2B	67516
7/16	20	4	UNF	2B	67568
1/2	13	3	UNC	2B	67518
1/2	20	4	UNF	2B	67570
9/16	12	3	UNC	2B	67520
9/16	18	4	UNF	2B	67572
5/8	11	3	UNC	2B	67552
5/8	18	4	UNF	2B	67574
3/4	10	4	UNC	2B	67554
3/4	16	4	UNF	2B	67576

Ultra-Kut 500
Premium High Speed Steel

Chamfer: 2 to 3 threads
ANSI Length, ANSI Shank

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Ultra-Kut®

ISO Metric Straight Fluted Taps

This geometry is suitable for mehanite iron, pearlitic, ferritic or austenitic iron, spheroidal graphite iron, low alloyed casting steel, heat treated parts, forged parts, HSS, bronze, tool steels, sintered parts and gunmetal materials.

Ultra-Kut 520
Premium High Speed Steel

Chamfer: 1.5 to 2 threads
ANSI Length, ANSI Shank

Size	Pitch mm	FLT	MF/MC	Class Of Fit	Nitride EDP #
M4	.70	3	MC	6H	67756
M5	.80	3	MC	6H	67758
M6	1.00	3	MC	6H	67760
M8	1.25	3	MC	6H	67762
M10	1.00	4	MF	6H	67776
M10	1.25	4	MF	6H	67778
M10	1.50	3	MC	6H	67764
M12	1.50	4	MF	6H	67780
M12	1.75	3	MC	6H	67766
M14	1.50	4	MF	6H	67782
M14	2.00	3	MC	6H	67768
M16	2.00	3	MC	6H	67770
M20	2.50	4	MC	6H	67772
M24	3.00	4	MC	6H	67774

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Thread Forming Taps With Oil Grooves

This geometry is suitable for cold-forming threads in ductile materials, having good plastic flow, and hardness of up to about 250 BHN.

Size	T.P.I.	UNC	Class Of Fit	TiN EDP #
4	40	UNC	2B	67600
5	40	UNC	2B	67601
6	32	UNC	2B	67602
8	32	UNC	2B	67603
10	24	UNC	2B	67604
1/4	20	UNC	2B	67605
5/16	18	UNC	2B	67606
3/8	16	UNC	2B	67607
7/16	14	UNC	2B	67608
1/2	13	UNC	2B	67609
9/16	12	UNC	2B	67610
5/8	11	UNC	2B	67611
3/4	10	UNC	2B	67612

Ultra-Kut 600
Premium High Speed Steel

Chamfer: 2 to 3 threads
ANSI Length, ANSI Shank

Size	T.P.I.	UNF	Class Of Fit	TiN EDP #
6	40	UNF	2B	67613
8	36	UNF	2B	67614
10	32	UNF	2B	67615
1/4	28	UNF	2B	67616
5/16	24	UNF	2B	67617
3/8	24	UNF	2B	67618
7/16	20	UNF	2B	67619
1/2	20	UNF	2B	67620
9/16	18	UNF	2B	67621
5/8	18	UNF	2B	67622
3/4	16	UNF	2B	67623

Ultra-Kut 610
Premium High Speed Steel

Chamfer: 2 to 3 threads
ANSI Length, ANSI Shank

ISO Metric Thread Forming Taps With Oil Grooves

This geometry is suitable for cold-forming threads in ductile materials, having good plastic flow, and hardness of up to about 250 BHN.

Size	Pitch mm	MC	Class Of Fit	TiN EDP #
M6	1.00	MC	6H	67624
M8	1.25	MC	6H	67625
M10	1.50	MC	6H	67626
M12	1.75	MC	6H	67627

Ultra-Kut 620
Premium High Speed Steel

Chamfer: 2 to 3 threads
ANSI Length, ANSI Shank

Ultra-Kut®

S.T.I. Spiral Pointed Taps

These taps are used to produce threads which will accommodate Screw Thread Inserts.

Ultra-Kut 710
Premium High Speed Steel

Chamfer: 4 to 5 threads
DIN Length, ANSI Shank

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	Nitride EDP #
4	40	3	UNC	3B	67676
4	48	3	UNF	3B	67677
5	40	3	UNC	3B	67678
6	32	3	UNC	3B	67679
6	40	3	UNF	3B	67680
8	32	3	UNC	3B	67681
8	36	3	UNF	3B	67682
10	24	3	UNC	3B	67683
10	32	3	UNF	3B	67684
12	24	3	UNC	3B	67685
1/4	20	3	UNC	3B	67686
1/4	28	3	UNF	3B	67687
5/16	24	3	UNF	3B	67688
3/8	16	3	UNC	3B	67689
3/8	24	4	UNF	3B	67690
7/16	14	3	UNC	3B	67691
7/16	20	3	UNF	3B	67692
1/2	13	3	UNC	3B	67419
1/2	20	3	UNF	3B	67421
9/16	12	3	UNC	3B	67423
9/16	18	3	UNF	3B	67425
5/8	11	3	UNC	3B	67427
5/8	18	4	UNF	3B	67429
3/4	10	3	UNC	3B	67431
3/4	16	4	UNF	3B	67433

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

S.T.I. Spiral Fluted Taps

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	EDP #
4	40	3	UNC	3B	67435
4	48	3	UNF	3B	67437
5	40	3	UNC	3B	67439
6	32	3	UNC	3B	67441
6	40	3	UNF	3B	67443
8	32	3	UNC	3B	67445
8	36	3	UNF	3B	67447
10	24	3	UNC	3B	67449
10	32	3	UNF	3B	67451
12	24	3	UNC	3B	67453
1/4	20	3	UNC	3B	67455
1/4	28	3	UNF	3B	67457
5/16	18	3	UNC	3B	67486
3/8	16	5	UNC	3B	67501
3/8	24	4	UNF	3B	67503
7/16	14	4	UNC	3B	67505
7/16	20	5	UNF	3B	67507
1/2	13	4	UNC	3B	67509
1/2	20	5	UNF	3B	67511
9/16	12	4	UNC	3B	67513
9/16	18	5	UNF	3B	67515
5/8	11	4	UNC	3B	67517
5/8	18	5	UNF	3B	67519
3/4	10	5	UNC	3B	67521
3/4	16	5	UNF	3B	67522

Ultra-Kut 715
Premium High Speed Steel
Chamfer: 1.5 to 2 threads
DIN Length, ANSI Shank

S.T.I. ISO Metric Spiral Pointed Taps

Size	MM	FLT	MC	Class Of Fit	Nitride EDP #
M2.5	0.45	3	MC	6H	67771
M3.0	0.50	3	MC	6H	67773
M3.5	0.60	3	MC	6H	67775
M4.0	0.70	3	MC	6H	67777
M5.0	0.80	3	MC	6H	67779
M6.0	1.00	3	MC	6H	67781
M8.0	1.25	3	MC	6H	67797
M10.0	1.50	3	MC	6H	67798
M12.0	1.75	3	MC	6H	67799
M14.0	2.00	3	MC	6H	67853
M16.0	2.00	3	MC	6H	67994
M18.0	2.50	3	MC	6H	67998
M20.0	2.50	4	MC	6H	67999

Ultra-Kut 720
Premium High Speed Steel
Chamfer: 4 to 5 threads
DIN Length, DIN Shank

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Ultra-Kut®

S.T.I. ISO Metric Spiral Fluted Taps

Ultra-Kut 725
Premium High Speed Steel

Chamfer: 1.5 to 2 threads
DIN Length, DIN Shank

Size	MM	FLT	MC	Class Of Fit	EDP #
M2.5	0.45	3	MC	6H	67191
M3.0	0.50	3	MC	6H	67192
M3.5	0.60	3	MC	6H	67193
M4.0	0.70	3	MC	6H	67194
M5.0	0.80	3	MC	6H	67195
M6.0	1.00	3	MC	6H	67196
M8.0	1.25	3	MC	6H	67197
M10.0	1.50	5	MC	6H	67198
M12.0	1.75	4	MC	6H	67199
M14.0	2.00	4	MC	6H	67276
M16.0	2.00	5	MC	6H	67277
M18.0	2.50	5	MC	6H	67278
M20.0	2.50	5	MC	6H	67279

S.T.I. Spiral Fluted Taps for Titanium

Ultra-Kut 730
Premium High Speed Steel

Chamfer: 2 to 3 threads
DIN Length, ANSI Shank

Size	T.P.I.	FLT	UNF/UNC	Class Of Fit	Nitride EDP #
4	40	3	UNC	3B	67317
4	48	3	UNF	3B	67319
5	40	3	UNC	3B	67321
6	32	3	UNC	3B	67323
6	40	3	UNF	3B	67325
8	32	3	UNC	3B	67327
8	36	3	UNF	3B	67329
10	24	3	UNC	3B	67331
10	32	3	UNF	3B	67333
12	24	3	UNC	3B	67335
1/4	20	3	UNC	3B	67337
1/4	28	3	UNF	3B	67339
5/16	18	3	UNC	3B	67341
5/16	24	3	UNF	3B	67343
3/8	16	3	UNC	3B	67345
3/8	24	3	UNF	3B	67378
7/16	14	3	UNC	3B	67379
7/16	20	3	UNF	3B	67667
1/2	13	3	UNC	3B	67668
1/2	20	3	UNF	3B	67669
9/16	12	3	UNC	3B	67670
9/16	18	3	UNF	3B	67671
5/8	11	3	UNC	3B	67672
5/8	18	4	UNF	3B	67673
3/4	10	3	UNC	3B	67674
3/4	16	4	UNF	3B	67675

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Oversize Spiral Fluted Taps

These taps are used to produce oversize threads to allow for heat treat or plating.

Size	T.P.I.	FLT	UNF/UNC	H LIMIT	OXIDE EDP #
10	24	3	UNC	GH7	67693
10	32	3	UNF	GH7	67694
1/4	20	3	UNC	GH11	67695
1/4	28	3	UNF	GH11	67696
5/16	18	3	UNC	GH11	67697
5/16	24	3	UNF	GH11	67698
3/8	16	3	UNC	GH11	67699
3/8	24	3	UNF	GH11	67757
7/16	14	3	UNC	GH11	67759
7/16	20	3	UNF	GH11	67761
1/2	13	3	UNC	GH11	67763
1/2	20	4	UNF	GH11	67765
5/8	11	3	UNC	GH11	67767
5/8	18	4	UNF	GH11	67769

Ultra-Kut 800
Premium High Speed Steel
Chamfer: 2 to 3 threads
ANSI Length, ANSI Shank

Oversize Spiral Pointed Taps

Size	T.P.I.	FLT	UNF/UNC	H LIMIT	Nitride EDP #
10	24	3	UNC	GH7	67294
10	32	3	UNF	GH7	67295
1/4	20	3	UNC	GH11	67296
1/4	28	3	UNF	GH11	67297
5/16	18	3	UNC	GH11	67298
5/16	24	3	UNF	GH11	67299
3/8	16	3	UNC	GH11	67301
3/8	24	3	UNF	GH11	67303
7/16	14	3	UNC	GH11	67305
7/16	20	3	UNF	GH11	67307
1/2	13	3	UNC	GH11	67309
1/2	20	3	UNF	GH11	67311
5/8	11	3	UNC	GH11	67313
5/8	18	3	UNF	GH11	67315

Ultra-Kut 810
Premium High Speed Steel
Chamfer: 4 to 5 threads
ANSI Length, ANSI Shank

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Ultra-Kut®

Standard Taper Pipe Taps

Ultra-Kut 900
Premium High Speed Steel
Chamfer: 2 to 3 threads
ANSI Length, ANSI Shank

Size	T.P.I.	FLT	NPT EDP #	NPTF EDP #
1/16	27	4	67664	67665
1/8	27	5	67523	67524
1/4	18	5	67525	67526
3/8	18	5	67527	67528
1/2	14	5	67529	67531
3/4	14	6	67532	67533
1	11-1/2	6	67534	67535
1-1/4	11-1/2	6	67536	67537
1-1/2	11-1/2	7	67538	67539
2	11-1/2	7	67540	67541

Spiral Fluted Taper Pipe Taps

Ultra-Kut 910
Premium High Speed Steel
Chamfer: 2 to 3 threads
ANSI Length, ANSI Shank

Size	T.P.I.	FLT	NPT EDP #	NPTF EDP #
1/16	27	3	67553	67555
1/8	27	3	67557	67559
1/4	18	3	67561	67563
3/8	18	3	67565	67567
1/2	14	5	67569	67571
3/4	14	5	67573	67575
1	11-1/2	5	67666	67629
1-1/4	11-1/2	5	67658	67659
1-1/2	11-1/2	5	67660	67661
2	11-1/2	7	67662	67663

Interrupted Thread Dryseal Taper Pipe Taps

Ultra-Kut 930
Premium High Speed Steel
Chamfer: 2 to 3 threads
ANSI Length, ANSI Shank

Size	T.P.I.	FLT	NPTF EDP #
1/16	27	3	67542
1/8	27	3	67543
1/4	18	3	67544
3/8	18	3	67545
1/2	14	5	67546
3/4	14	5	67547
1	11-1/2	5	67548
1-1/4	11-1/2	5	67549
1-1/2	11-1/2	5	67550
2	11-1/2	7	67551

Many TiN and TiCN tools are in stock. Items not in stock subject to 5-10 day delivery.

Holders & Adapters

Other Cutting Tools

SHELL END MILLS AND CORNER ROUNDING END MILLS 82

For slabbing or for surfacing cuts. End forming tools to form a specific radius.

T-SLOT AND SINGLE ANGLE CUTTERS 83

Used for milling dovetails. Reduced set up time.

HOLDERS 88

Come in heavy duty, taper shank, quick change, auxillary and shell mill styles. Simplifies the changing from one size to another.

Shell End Mills

High Speed Steel

R.H. Cut, R.H. Helix & L.H. Cut, L.H. Helix (20 degree)

These mills are for slabbing or for surfacing cuts, either end milling or face milling.

Diameter	Length of Cut	Hole Diameter	Drive Slot Width	Drive Slot Depth	Number of Teeth	Part No. R.H.	Part No. L.H.	EDP No. R.H.	EDP No. L.H.
1-1/4	1	1/2	1/4	5/32	8	S125-3	S125-3L.H.	39030	39130
1-1/2	1-1/8	1/2	1/4	5/32	8	S150-3	S150-3L.H.	39032	39132
1-3/4	1-1/4	3/4	5/16	3/16	8	S175-5	S175-5L.H.	39034	39134
2	1-3/8	3/4	5/16	3/16	10	S200-5	S200-5L.H.	39036	39136
2-1/4	1-1/2	1	3/8	7/32	10	S225-7	S225-7L.H.	39038	39138
2-1/2	1-5/8	1	3/8	7/32	10	S250-7	S250-7L.H.	39040	39140
2-3/4	1-5/8	1	3/8	7/32	10	S275-7	S275-7L.H.	39042	39142
3	1-3/4	1-1/4	1/2	9/32	12	S300-8	S300-8L.H.	39044	39144
3-1/2	1-7/8	1-1/4	1/2	9/32	12	S350-8	S350-8L.H	39046	39146
4	2-1/4	1-1/2	5/8	3/8	14	S400-9	S400-9L.H.	39048	39148
4-1/2	2-1/4	1-1/2	5/8	3/8	14	S450-9	S450-9L.H.	39050	39150
5	2-1/4	1-1/2	5/8	3/8	16	S500-9	S500-9L.H.	39052	39152
6	2-1/4	2	3/4	7/16	16	S600-10	S600-10L.H.	39054	39154

For see page 89.

These Cutters are standard with square corners.

Corner Rounding End Mills

High Speed Steel

with WELDON Shank
RIGHT HAND CUT ONLY

Two screw drive on 7/8" shanks and larger

These tools can be adapted for many applications as end forming tools to form a specific radius. The tools are of the form relieved type and are sharpened without changing the form and size of the radius.

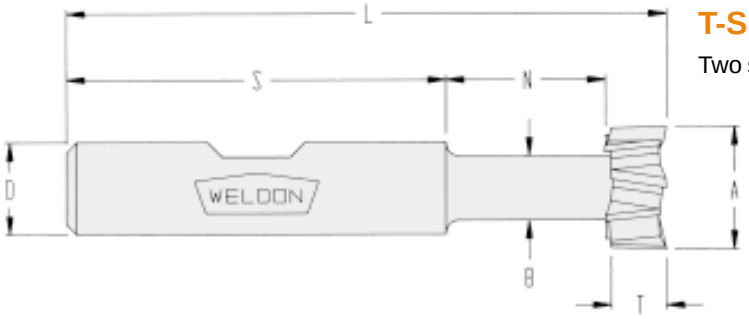
Radius	Diameter of Shank	Largest Diameter	Dimension A	Overall Length	Part No.	EDP No.
1/16	3/8	7/16	1/4	2-1/2	CR2-2	35110
3/32	3/8	1/2	1/4	2-1/2	CR3-2	35112
1/8	1/2	5/8	1/4	3	CR4-3	35114
5/32	1/2	3/4	5/16	3	CR5-3	35116
3/16	1/2	7/8	5/16	2-15/16	CR6-3	35118
1/4	1/2	1	3/8	3	CR8-3	35120
5/16	1/2	1-1/8	3/8	3-1/4	CR10-3	35122
3/8	1/2	1-1/4	3/8	3-1/2	CR12-3	35124
3/16	3/4	7/8	5/16	3-1/8	CR6-5	35126
1/4	3/4	1	3/8	3-1/4	CR8-5	35128
5/16	7/8	1-1/8	3/8	3-1/2	CR10-6	35130
3/8	7/8	1-1/4	3/8	3-3/4	CR12-6	35132
7/16	1	1-3/8	3/8	4	CR14-7	35134
1/2	1	1-1/2	3/8	4-1/8	CR16-7	35136

Corner Rounding End Mill Set

Order No. 1-CR-SET
EDP No. 99026
This set consists of the following cutters:

CR2-2	CR3-2	CR4-3	CR5-3
CR6-5	CR8-5	CR10-6	CR12-6

T-Slot Cutters • Single Angle Milling Cutters



T-Slot Cutters

Two screw drive on 1" shanks and larger

Showing R.H. Cut. Cutters other than R.H. Cut are special.

Bolt Size	Diameter A	Width T	Neck Dia. B	Overall Length L	Shank Dia. D	Shank Length S	Neck Length N	Part No.	EDP No.
1/4	9/16	15/64	17/64	2-19/32	1/2	1-13/16	35/64	1-3	35210
5/16	21/32	17/64	21/64	2-11/16	1/2	1-13/16	39/64	2-3	35212
3/8	25/32	21/64	13/32	3-1/4	3/4	2-1/16	55/64	3-5	35214
1/2	31/32	25/64	17/32	3-7/16	3/4	2-1/16	63/64	4-5	35216
5/8	1-1/4	31/64	21/32	3-15/16	1	2-5/16	1-9/6	5-7	35218
3/4	1-15/32	5/8	25/32	4-7/16	1	2-5/16	1-1/2	6-7	35222
1	1-27/32	53/64	1-1/32	4-13/16	1-1/4	2-5/16	1-43/64	7-8	35220
1-1/4	2-7/32	1-3/32	1-7/32	5-3/8	1-1/4	2-5/16	1-31/32	8-8	35224
1-1/2	2-21/32	1-11/32	1-17/32	5-29/32	1-1/4	2-7/16	2-1/8	9-8	35226

Single Angle	Diameter of Cutter	Width of Cutter	Diameter of Shank	Overall Length	Part No.	EDP No.
45°	3/4	7/32	3/8	2-3/32	YB24-2	34010
	1-3/8	3/8	5/8	2-11/16	YB44-4	34020
	1-7/8	1/2	7/8	2-15/16	YB60-6	34030
	2-1/4	11/16	1	3-9/16	YB72-7	34040
60°	3/4	5/16	3/8	2-1/8	YA24-2	34110
	1-3/8	9/16	5/8	2-7/8	YA44-4	34120
	1-7/8	13/16	7/8	3-1/4	YA60-6	34130
	2-1/4	1-1/16	1	3-3/4	YA72-7	34140

Single Angle Milling Cutters High Speed Steel

Two screw drive on 7/8" shanks and larger

This type cutter is used for milling dovetails and similar work. Set-up time is greatly reduced as compared with arbor type cutters. Convenient for tool room as well as manufacturing operation.

Angle Cutter Sets

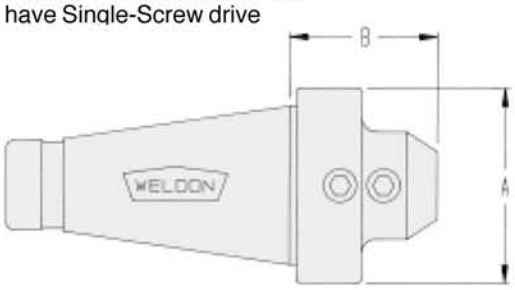
No. 4-AC – 60° Angle EDP No. 99028
No. 5-AC – 45° Angle EDP No. 99030
Sets consist of one each of the cutters listed above.

End Mill Holders • Taper Shank Type

For Single-End or Double-End End Mills

American National Standard Taper Shank Holders Nos. 50 and 40

Holders with holes under 7/8" have Single-Screw drive

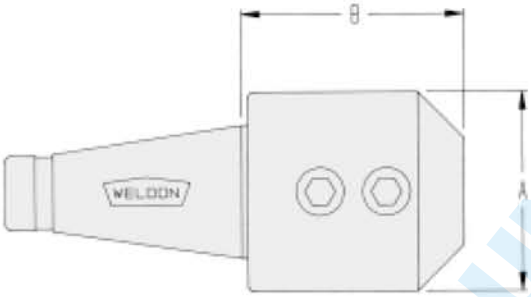


End Mill Shank Dia.	Diameter A	Dimension B	Tapped For Drawbar	Part No.	EDP No.
No. 50 A.N.S.T.					
3/8	1	2-3/4	1" - 8	CN-2	35502
1/2	1-3/8	2-3/4	1" - 8	CN-3	35504
5/8	1-5/8	2-3/4	1" - 8	CN-4	35506
3/4	1-7/8	2-3/4	1" - 8	CN-5	35508
7/8	2	2-3/4	1" - 8	CND-6	35510
1	2-3/8	2-3/4	1" - 8	CND-7	35512
1-1/4	2-5/8	2-3/4	1" - 8	CND-8	35514
2	4-1/4	4-1/2	1" - 8	CND-10	35516
2-1/2	5-1/8	4-1/2	1" - 8	CND-12	35518
No. 40 A.N.S.T.					
3/16	11/16	2-5/16	5/8" - 11	BN-1	35402
3/8	1	2-5/16	5/8" - 11	BN-2	35404
1/2	1-3/8	2-5/16	5/8" - 11	BN-3	35406
5/8	1-5/8	2-5/16	5/8" - 11	BN-4	35408
3/4	1-7/8	2-5/16	5/8" - 11	BN-5	35410
7/8	2	2-11/16	5/8" - 11	BND-6	35412
1	2-3/8	2-11/16	5/8" - 11	BND-7*	35414
1-1/4	2-5/8	2-29/32	5/8" - 11	BND-8	35416

*For Single-End End Mills only

No. 50 American National Standard Taper Shank Holders, CND-10, CND-12

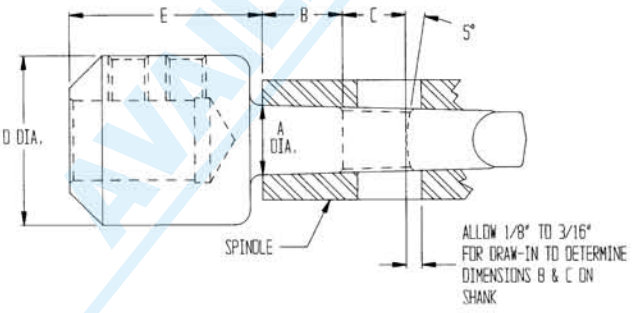
Tapped for Drawbar 1" - 8 N.C. -R.H.



Morse Taper Shank Holders

Please specify **shank dimensions** A, B, C, and slot width when ordering.

NOTE: Dimensions **A, B, C, D & E Are All Holder Dimensions, Not Spindle Dimensions.**



End Mill Shank Dia.	Shank Taper	Diameter D	Dimension E	Part No.	Ref. No.	EDP No.
2	No. 5 Morse	4-1/4	4-13/16	95-818	HMD5-10	36310
2	No. 5 Morse	4-1/4	4-13/16	95-819	*HMD5-10F	36312
2	No. 6 Morse	4-1/4	4-3/4	95-816	HMD6-10	36314
2	No. 6 Morse	4-1/4	4-3/4	95-814	*HMD6-10F	36316
2	No. 7 Morse	4-1/4	4-3/4	95-817	HMD7-10	36318
2-1/2	No. 7 Morse	5-1/8	4-3/4	95-815	HMD7-12	36320

*For machines requiring drive flats

AVAILABLE UNTIL STOCK DEPLETED

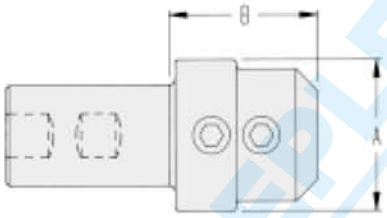
End Mill Auxiliary Holders and Sleeves

For End Mills with Weldon Shanks smaller than 2" diameter used in Weldon's 2" and 2-1/2" diameter holders

End Mill Shank Dia.	Diameter of Shank	Diameter A	Dimension B†	Part No.	EDP No.
3/8	2	1	1-7/8	BH-2	35610
1/2	2	1-3/8	1-7/8	BH-3	35612
5/8	2	1-5/8	1-7/8	BH-4	35614
3/4	2	1-7/8	1-7/8	BH-5	35616
7/8	2	2	2-5/8	BHD-6	35618
1	2	2-3/8	2-5/8	BHD-7	35620
1-1/4	2	2-5/8	2-27/32	BHD-8	35622
3/8	2-1/2	1	1-7/8	CH-2	35710
1/2	2-1/2	1-3/8	1-7/8	CH-3	35712
5/8	2-1/2	1-5/8	1-7/8	CH-4	35714
3/4	2-1/2	1-7/8	1-7/8	CH-5	35716
7/8	2-1/2	2	2-3/4	CHD-6	35718
1	2-1/2	2-3/8	2-11/16	CHD-7	35720
1-1/4	2-1/2	2-5/8	3	CHD-8	35722

†Distance from face of main holder.

For Single-End and Double-End End Mills with Weldon Shanks

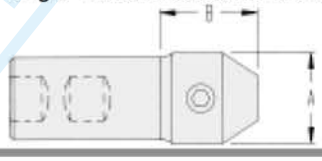


End Mill Shank Dia.	Diameter of Shank	Diameter A	Dimension B	Part No.	EDP No.
3/8		1	1-3/8	AH-2	35810
1/2		1-3/8	1-1/2	AH-3	35812
5/8	1-1/4	1-5/8	1-11/16	AH-4	35814
3/4		1-7/8	2-7/16	AH-5*	35816
7/8		2	2-11/16	AHD-6*	35818

*For Single-End End Mills only.

"AH" Series Holders

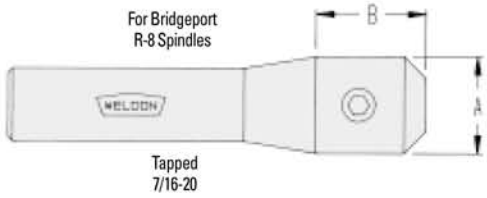
For use in all Weldon-Type Holders with 1-1/4" holes. Permit rapid tool changes to smaller end mill shank sizes. Accommodate single-end and double-end end mills except where noted.



End Mill Shank Dia.	Diameter A	Dimension B	Part No.	EDP No.
3/16	1	1-13/32	BR-1	35910
3/8	1	1-13/32	BR-2	35912
1/2	1-1/4	1-13/32	BR-3	35914
5/8	1-5/8	2-1/16	BR-4	35916
3/4	1-3/4	2-3/8	BR-5*	35918
7/8	1-7/8	2-3/8	BR-6*	35920
1	2-1/4	2-3/4	BR-7*	35922

*For Single-End End Mills only.

End Mill Holders for Bridgeport R-8 Spindles

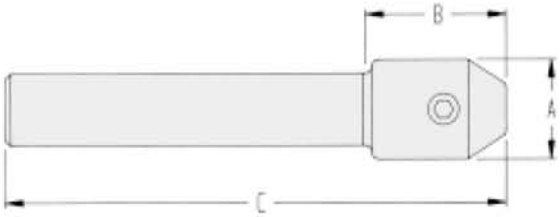


End Mill Shank Dia.	Diameter of Shank	Diameter A	Dimension B	Dimension C	Part No.	EDP No.
3/16		1	—	6-1/4	MMH-1	36010
3/8		1	—	6-1/4	MMH-2	36012
1/2	1	1-3/8	2	6-7/8	MMH-3	36014
5/8		1-5/8	2-1/4	7	MMH-4*	36016
3/4		1-3/4	2-7/16	7-1/4	MMH-5*	36018

*For Single-End End Mills only.

"MMH" Series Holders

For use primarily on Milwaukee-Matic, numerically controlled milling machines when longer reaches are desired. Accommodates single-end and double-end end mills except where noted.



AVAILABLE UNTIL STOCK DEPLETED

Adapters for Quick Change End Mill Holders

For Spindle No. 50 American National Standard Taper

The Weldon Quick Change Adapter simplifies the changing from one size of holder to another in that it completely eliminates the necessity to loosen the spindle drawbar each time a holder is changed. The adapter is secured in the spindle by the drawbar and is driven by keys on the spindle nose. The holder is held firmly in the adapter by two socket head set screws which seat in angular pockets on the shank of the holder and is driven by two keys on the nose of the adapter. Quick Change from one holder to another is made by merely loosening the two set screws.

Description	Part No.	EDP No.
For No. 50 A.N.S.T. Spindle - Tapped 1" - 8 N.C. - R.H.	QA-50	36210

Morse Taper Shank Adapter

Please specify **shank dimensions** A, B, C, and slot width when ordering.

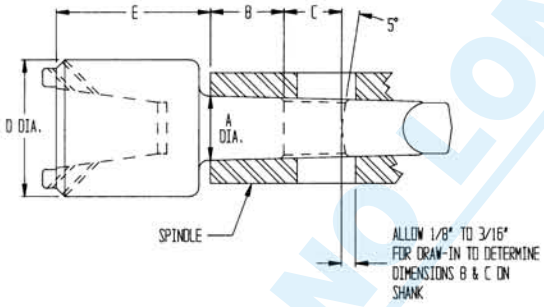
**If measuring machine spindle, allow 1/8 to 3/16 for draw-in to determine dimensions B & C on shank of holder.

SPECIFY WIDTH OF SLOT

NOTE: Dimensions **A, B, C, D & E Are All Holder Dimensions, Not Spindle Dimensions.**

Shank Taper	Diameter D	Dimension E	Part No.	Ref. No.	EDP No.
No. 5 Morse	3-3/4	3-7/8	95-805	QMA-5	96805
No. 5 Morse	3-3/4	3-7/8	95-806	*QMA-5F	96806
No. 6 Morse	3-3/4	1-3/4	95-810	QMA-6	96810
No. 6 Morse	3-3/4	1-3/4	95-811	*QMA-6F	96811
No. 7 Morse	3-3/4	1-1/2	95-813	QMA-7	96813

*For machines requiring drive flats



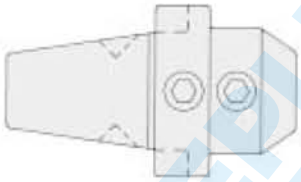
NO LONGER AVAILABLE

Quick Change End Mill Holders

Holders For QA-50 and QMA Morse Taper Shank Adapters

End Mill Holders - Quick Change For Single-End or Double-End End Mills

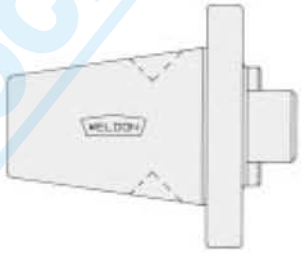
End Mill Shank Diameter	Part No.	EDP No.
3/8	QH-2	36502
1/2	QH-3	36504
5/8	QH-4	36506
3/4	QH-5	36508
7/8	QHD-6	36510
1	QHD-7	36512
1-1/4	QHD-8	36514



Shell Mill Holders - Quick Change

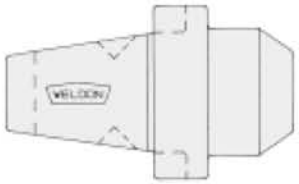
Diameter of Stud	Diameter of Shell Mill	Part No.	EDP No.
1/2	1-1/4, 1-1/2	QSH-1*	36902
3/4	1-3/4, 2	QSH-2*	36904
1	2-1/4, 2-1/2, 2-3/4	QSH-3	36906
1-1/4	3, 3-1/2	QSH-4	36908
1-1/2	4, 4-1/2, 5	QSH-5	36910

*Slot tighten



Morse Taper I.D. Holders - Quick Change

Taper of I.D.	Part No.	EDP No.
No. 3 Morse	QM-3	36602
No. 4 Morse	QM-4	36604



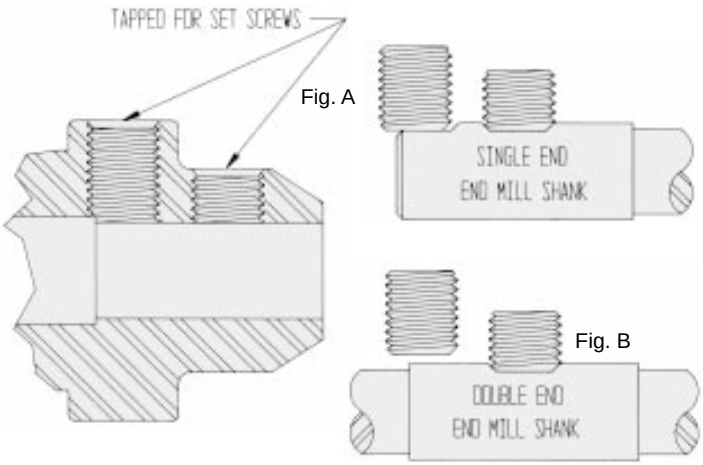
AVAILABLE UNTIL STOCK DEPLETED

Precision Set Screws • For Weldon Holders

Set screws for Weldon holders are specially made to close tolerances with particular attention to the diameter of the point and the angle of the chamfer. This assures an accurate fit on the flat of the end mill and provides a positive drive and maximum holding power. The table below indicates the correct set screws to be used in Weldon holders.

Hole Size of Holder	Screw Size		Exceptions Holder No.	Screw Size	
*3/16"	3/8-16 x 5/16 (6)				
3/8"	3/8-16 x 5/16 (6)				
1/2"	7/16-14 x 3/8 (4)				
5/8"	9/16-12 x 1/2 (4)				
3/4"	5/8-11 x 1/2 (4)				
7/8"	5/8-11 x 1/2 (4)				
1"			BR-7	3/4-10 x 11/16 (4)	
	For 2 Screw Holders			For 2 Screw Holders	
	Front	Back		Front	Back
7/8"	5/8-11 x 1/2 (4)	5/8-11 x 3/4 (4)	QHD-6	5/8-11 x 1/2 (4)	5/8-11 x 1/2 (4)
7/8"			CND-6	5/8-11 x 1/2 (4)	5/8-11 x 1-1/4 (4)
1"	3/4-10 x 11/16 (4)	3/4-10 x 13/16 (4)			
1"			QHD-7	3/4-10 x 11/16 (4)	3/4-10 x 1-1/32 (4)
1"			CND-7	3/4-10 x 11/16 (4)	3/4-10 x 1-1/8 (4)
1-1/4"	3/4-10 x 11/16 (4)	3/4-10 x 15/16 (4)			
1-1/4"			QHD-8	3/4-10 x 11/16 (4)	3/4-10 x 1-1/32 (4)
1-1/4"			CND-8	3/4-10 x 11/16 (4)	3/4-10 x 1-1/8 (4)
2"	1-14 x 1-1/8 (2)	1-14 x 1-1/8 (2)			
2"					
2-1/2"	1-14 x 1-5/16 (2)	1-14 x 1-5/16 (2)			
2-1/2"					

Screws for Quick Change Adapter No. QA-50.....1/2-13 x 1-1/8 (4)
All Screws have Class 3 Threads.
NOTE: Figure in parentheses ( ) indicates number of set screws in package.
*NOTE: 3/16 dia. holders manufactured prior to 1980 will continue to use 1/4-20 x 1/4 (10) set screws.



Precision Set Screws

Holder Size	Screw Size	Part No.	EDP No.
3/16	1/4-20x1/4	71-00120	67012
3/8	3/8-16x5/16	71-00140	67014
1/2	7/16-14x3/8	71-00150	67015
QA-50 Adapter	1/2-13x1-1/8	71-00170	67017
5/8	9/16-12x1/2	71-00180	67018
3/4 & 7/8	5/8-11x1/2	71-00190	67019
7/8	5/8-11x3/4	71-00210	67021
7/8	5/8-11x1-1/4	71-00220	67022
1 & 1-1/4	3/4-10x11/16	71-00230	67023
1	3/4-10x13/16	71-00240	67024
1-1/4	3/4-10x15/16	71-00250	67025
1 & 1-1/4	3/4-10x1-1/32	71-00260	67026
1 & 1-1/4	3/4-10x1-1/8	71-00262	67036
2	1-14x1-1/8	71-00290	67029
2-1/2	1-14x1-5/16	71-00295	67034
2 & 2-1/2	1-14x1-1/2	71-00300	67030
2	1-14x7/8	71-00302	67032

The 2-Screw Drive Holder, as shown by the diagram, has two set screws. The one nearest the nose of the holder fits into and seats on the flat nearest the middle of the end mill shank; the other screw seats on the flat on the end of the shank (Fig. A).
2-Screw Drive Holders may be used for single or double-end end mills. For double-end end mills, simply unscrew the set screw farthest from the nose of the holder enough to allow the end mill to be inserted. The second screw does not require tightening when using double-end end mills. (Fig. B).

Shell Mill Holders

No. 50 and No. 40 American National Standard Taper Shank

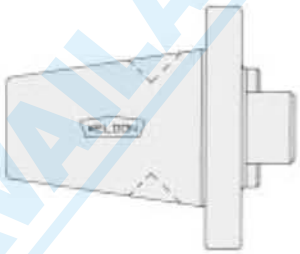
Diameter of Stud	N.S.T. Shank	Diameter of Shell Mill	Part No.	EDP No.
1/2		1-1/4, 1-1/2	CSN-1*	36802
3/4		1-3/4, 2	CSN-2*	36804
1		2-1/4, 2-1/2, 2-3/4	CSN-3	36806
1-1/4	No. 50	3, 3-1/2	CSN-4	36808
1-1/2		4, 4-1/2, 5	CSN-5	36810
2		6	CSN-6	36812
1/2		1-1/4, 1-1/2	BSN-1*	36702
3/4		1-3/4, 2	BSN-2*	36704
1	No. 40	2-1/4, 2-1/2, 2-3/4	BSN-3	36706
1-1/4		3, 3-1/2	BSN-4	36708
1-1/2		4, 4-1/2, 5	BSN-5	36710

*Slot tighten

Shell Mill Holders - Quick Change for use with QA 50 and QMA Morse Taper Shank Adapters

Diameter of Stud	Diameter of Shell Mill	Part No.	EDP No.
1/2	1-1/4, 1-1/2	QSH-1*	36902
3/4	1-3/4, 2	QSH-2*	36904
1	2-1/4, 2-1/2, 2-3/4	QSH-3	36906
1-1/4	3, 3-1/2	QSH-4	36908
1-1/2	4, 4-1/2, 5	QSH-5	36910

*Slot tighten



For Bridgeport R-8 Spindles

Diameter of Stud	Diameter of Shank	Diameter of Shell Mill	Part No.	EDP No.
1/2		1-1/4, 1-1/2	BRS-1*	37002
3/4	R-8	1-3/4, 2	BRS-2*	37004
1		2-1/4, 2-1/2, 2-3/4	BRS-3	37006

*Slot tighten

7/16-20 Drawbar Thread

With 3/4" Diameter Weldon Shank

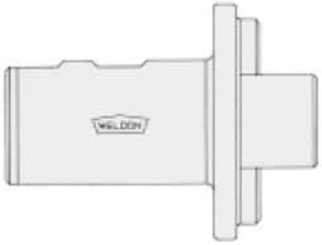
Diameter of Stud	Diameter of Shank	Diameter of Shell Mill	Part No.	EDP No.
1/2		1-1/4, 1-1/2	SH1-5*	37102
3/4	3/4	1-3/4, 2	SH2-5*	37104
1		2-1/4, 2-1/2, 2-3/4	SH3-5	37106

*Slot tighten

Shell End Mill Holders with Weldon Shank

Diameter of Stud	Diameter of Shank	Diameter of Shell Mill	Part No.	EDP No.
1/2	2	1-1/4, 1-1/2	BSH-1*	37202
3/4	2	1-3/4, 2	BSH-2*	37204
1	2	2-1/4, 2-1/2, 2-3/4	BSH-3	37206
1-1/4	2	3, 3-1/2	BSH-4	37208
1-1/2	2	4, 4-1/2, 5	BSH-5	37210
2	2	6	BSH-6	37212
1-1/2	2-1/2	4, 4-1/2, 5	CSH-5	37214
2	2-1/2	6	CSH-6	37216

*Slot tighten



NO LONGER AVAILABLE

Countersinks Counterbores Deburring Tools

91 **JIG BORER REAMERS AND SET**
Designed for reaming precision, close tolerance holes.

91 **JIG BORER HOLDERS**
Precision tolerance holder designed to hold Weldon Shank Reamers.

92 **COUNTERSINKS AND DEBURRING TOOLS AND SETS**
Will cut metals, plastic and wood. Single cutting edge for fast stock removal. Free cutting. Chatterless finish.

94 **TU-LIP® COUNTERBORES AND SET**
Designed for 1960 series socket head cap screws. Free cutting. Generous chip clearance will not damage reamed holes.

95 **STUB ARBORS AND SET**
Designed to be used in place of larger arbors in horizontal milling. Easy and convenient to use.

Jig Borer Reamers & Jig Borer Holders

Diam. of Reamer	Diam. of Shank	Number of Flutes	Overall Length	Part No.	EDP No.
1/8	3/8	4	2-9/16	J4-2	35010
5/32	3/8	4	2-9/16	J5-2	35012
3/16	3/8	4	2-13/16	J6-2	35014
7/32	3/8	4	2-13/16	J7-2	35016
1/4	3/8	4	3-5/16	J8-2	35018
9/32	3/8	4	3-5/16	J9-2	35020
5/16	3/8	6	3-9/16	J10-2	35022
11/32	3/8	6	3-9/16	J11-2	35024
3/8	3/8	6	3-9/16	J12-2	35026
13/32	1/2	6	4-5/16	J13-3	35028
7/16	1/2	6	4-5/16	J14-3	35030
15/32	1/2	6	4-5/16	J15-3	35032
1/2	1/2	6	4-5/16	J16-3	35034
9/16	1/2	6	4-5/16	J18-3	35036
5/8	1/2	6	4-5/16	J20-3	35038
11/16	1/2	6	4-5/16	J22-3	35040
3/4	1/2	8	4-5/16	J24-3	35042
13/16	1/2	8	4-5/16	J26-3	35044
7/8	1/2	8	4-5/16	J28-3	35046
15/16	1/2	8	4-5/16	J30-3	35048
1	1/2	8	4-5/16	J32-3	35050

These reamers are precision tools made of selected steel, heat treated and ground to closely controlled precise tolerances. Each reamer provides the same high standard of quality built into all Weldon tools. They are often referred to as jig borer end mills.

Jig Borer Reamer

with WELDON Shank
R.H. Cut, R.H. Helix
High Speed Steel

JIG BORER REAMERS on a special basis are available to meet your specifications.

Diameter of Hole	No. of Taper Shank	Tapped Hole for Drawbar	Part No.	EDP No.
5/8	4 Morse	M14 x 2-6H	HJS2-4	37302
3/4	4 Morse	M14 x 2-6H	HJS2-5	37304
7/8	4 Morse	M14 x 2-6H	HJS2-6	37306
1	4 Morse	M14 x 2-6H	HJS2-7	37308
1-1/4	4 Morse	M14 x 2-6H	HJS2-8	37310

Jig Borer Holders for SIP Boring Machines

This set consists of 21 Reamers, one each of the following sizes:

1/8	11/32	5/8
5/32	3/8	11/16
3/16	13/32	3/4
7/32	7/16	13/16
1/4	15/32	7/8
9/32	1/2	15/16
5/16	9/16	1

No. 1J - EDP No. 99032 Jig Borer Reamer Set

Countersinks and Deburring Tools

High Speed Steel

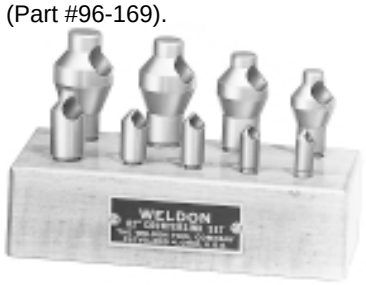
Countersinks you can count on – from start to finish.

Weldon high-speed steel countersinks and deburring tools are known for their high quality, unique designs and outstanding performance. No matter what material you're cutting, or what angle you're cutting it at, our tools will give you the chatterless finishes you're looking for.

With Weldon, you always get real value in the cutting tools you buy. Superior-quality countersinks and deburring tools at very competitive prices. Choose from our large selection of styles and sizes.

- Chatterless finish
- Single cutting edge for fast removal of stock
- Free-cutting
- Easily sharpened
- Designed for 60°, 82°, 90° and 100° cutting
- Specials also available

Tools of this type are easily sharpened either by the use of a small mounted grinding wheel inserted into the hole or on the Weldon Axial Relief Sharpening Fixture (Part #96-169).



1C

90DB

WC Set

WCG Set

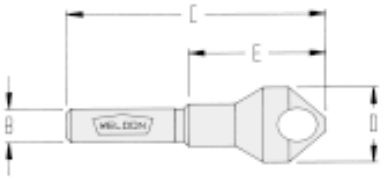
MACH-SET

Set Description	Part No.	EDP No.
The 60° Set consists of six tools: DC-6, DC-8, DC-14, DC-18, DC-26 and DC-36.	60DB	99038
The 90° Set consists of six tools: DB-6, DB-8, DB-14, DB-18, DB-26 and DB-36.	90DB	99040
The 82°-1C set consists of nine tools: CS-5S, CS-6S, CS-8S, CS-10S, CS8-1, CS10-1, CS12-1, CS14-1 and CS16-1. Pilots with basic diameters are furnished with this set.	1C	99034
The 82°-2C set consists of nine tools: CS-5S, CS-6S, CS-8S, CS-10S, CS8-2, CS10-2, CS12-2, CS14-2 and CS16-2. Pilots with 1/64 oversize diameters are furnished with this set.	2C	99036
The 82°-WC set consists of four tools: CS-5S, CS-6S, CS-8S and CS-10S.	WC-Set	99044
The 82°-GC set consists of four tools: CS-6S, CS-8S, CS-10S and CS-18.	GC-Set	99042
The 82°-WCG set consists of five tools: CS-5S, CS-6S, CS-8S, CS-10S and CS-18.	WCG-Set	99046
The MACH-SET consists of twelve tools: Tap 6-32, Tap 8-32, Tap 10-24, Tap 10-32, Tap 1/4-20, Drill #36, Drill #29, Drill #25, Drill #21, Drill #7, CS-8S and CS-18	MACH-SET	99590

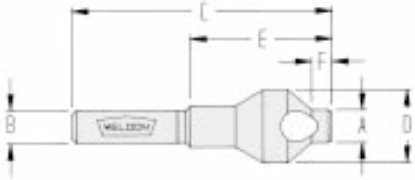
Countersinks and Deburring Tools

	Diameter of Cut Min.	Diameter of Cut Max.	Screw Size	A	Shank Dia. B	Overall Length C	D	E	F	Style	Tool No.	EDP No.
60° Deburring Tools	3/32	11/64			3/16	1-1/2				3	DC-6	98610
	1/8	15/64			1/4	1-3/4				3	DC-8	98620
	3/16	13/32			1/4	1-3/4	7/16	7/8		1	DC-14	98630
	5/16	17/32			1/4	1-15/16	9/16	1-1/16		1	DC-18	98640
	7/16	25/32			1/2	2-11/16	13/16	1-7/16		1	DC-26	98660
	7/16	25/32			1/4	2-1/8	13/16	1-1/4		1	DC-26A	98650
	11/16	1-3/32			1/2	2-7/8	1-1/8	1-5/8		1	DC-36	98670
82° Countersinks			1/4	1/4	3/8	2	33/64	1	5/32	2	CS8-1	98710
			1/4	17/64	3/8	2	33/64	1	5/32	2	CS8-2	98712
			5/16	5/16	3/8	2-3/16	41/64	1-3/16	5/32	2	CS10-1	98714
			5/16	21/64	3/8	2-3/16	41/64	1-3/16	5/32	2	CS10-2	98716
			3/8	3/8	1/2	2-5/8	49/64	1-3/8	5/32	2	CS12-1	98718
			3/8	25/64	1/2	2-5/8	49/64	1-3/8	5/32	2	CS12-2	98720
			7/16	7/16	1/2	2-3/4	53/64	1-1/2	7/32	2	CS14-1	98722
			7/16	29/64	1/2	2-3/4	53/64	1-1/2	7/32	2	CS14-2	98724
			1/2	1/2	1/2	2-13/16	15/16	1-9/16	1/4	2	CS16-1	98726
			1/2	33/64	1/2	2-13/16	15/16	1-9/16	1/4	2	CS16-2	98728
82° Pilotless Countersinks	.073	15/64			1/4	1-3/4				3	CS-3S	98810
	3/16	17/32			1/4	1-7/8	9/16	1		1	CS-18	98820
	.307	25/32			1/2	2-5/8	13/16	1-3/8		1	CS-26	98824
	.307	25/32			1/4	2-1/16	13/16	1-1/4		1	CS-26A	98822
	.431	7/8			1/2	2-13/16	1-1/8	1-9/16		1	CS-36	98826
	1/2	1-15/32			1/2	3-1/2	1-1/2	2-1/8		1	CS-48	98828
			Nos. 4, 5		1/4	1-1/2	17/64	5/8		1	CS-5S	98812
			No. 6		1/4	1-1/2	19/64	5/8		1	CS-6S	98814
			No. 8		1/4	1-5/8	11/32	3/4		1	CS-8S	98816
			No. 10		1/4	1-5/8	25/64	3/4		1	CS-10S	98818
90° Deburring Tools	1/64	11/64			3/16	1-1/2				3	DB-4	98910
	1/16	11/64			3/16	1-1/2				3	DB-6	98912
	1/8	15/64			1/4	1-3/4				3	DB-8	98914
	5/32	13/32			1/4	1-11/16	7/16	13/16		1	DB-14	98916
	3/16	17/32			1/4	1-7/8	9/16	1		1	DB-18	98918
	5/16	25/32			1/2	2-19/32	13/16	1-3/8		1	DB-26	98922
	5/16	25/32			1/4	2-1/32	13/16	1-5/32		1	DB-26A	98920
	9/16	1-3/32			1/2	2-13/16	1-1/8	1-9/16		1	DB-36	98926
	1/2	1-15/32			1/2	3-1/2	1-1/2	2-1/8		1	DB-48	98924
	1-1/16	2					2-1/8	7/8		4	DB-64	98928
	2	3					3-1/8	1		4	DB-96	98930
100° Countersinks	3/32	1/4			1/4	1-1/2	17/64	5/8		1	CSA-8	98110
	1/8	27/64			1/4	1-11/16	7/16	13/16		1	CSA-14	98120
	3/16	35/64			1/4	1-7/8	9/16	1		1	CSA-18	98130

Style 1



Style 2



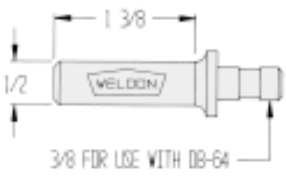
Style 3

Style 4

These tools can be sharpened by the use of the WELDON Axial Relieving fixture (Part #96-169).
An alternate method is by use of a small mounted grinding wheel inserted in the hole.

Shanks for DB-64 and DB-96

Size	Use	Part No.	EDP No.
1/2" (Straight) No. 2 Morse	For use with DB-64	DS-2 DS-2T	98510 98530
1/2" (Straight) No. 2 Morse	For use with DB-96	DS-3 DS-3T	98520 98540



“Tu-lip®” Counterbores & Sets • High Speed Steel

Designed for “1960 Series” socket head cap screws, Weldon Tu-lip Counterbores are extremely free cutting. With only two lips to regrind, tool room grinding costs are greatly reduced. Generous chip room in the flutes minimizes breakage caused by clogging. Solid pilots without grooves will not ream or mar holes.

STRAIGHT SHANK

TAPER SHANK

Screw Size	Pilot Diameter	Cutting Lip Diameter	Shank Diameter	Overall Length	Part No.	EDP No.
No. 4	.110	.199	5/32	2-1/2	LGN4-1	97402
No. 4	.125	.199	5/32	2-1/2	LGN4-2	97404
No. 6	.136	.242	3/16	2-1/2	LGN6-1	97406
No. 6	.150	.242	3/16	2-1/2	LGN6-2	97408
No. 8	.162	.290	3/16	2-1/2	LGN8-1	97410
No. 8	.178	.290	3/16	2-1/2	LGN8-2	97412
No. 10	.188	.332	3/16	2-3/4	LGN10-1	97414
No. 10	.204	.332	3/16	2-3/4	LGN10-2	97416
1/4	1/4	13/32	1/4	3-1/2	LGS8-1	97602
1/4	17/64	13/32	1/4	3-1/2	LGS8-2	97604
1/4	9/32	13/32	1/4	3-1/2	LGS8-3	97606
5/16	5/16	1/2	5/16	3-3/4	LGS10-1	97608
5/16	21/64	1/2	5/16	3-3/4	LGS10-2	97610
5/16	11/32	1/2	5/16	3-3/4	LGS10-3	97612
3/8	3/8	19/32	3/8	4	LGS12-1	97614
3/8	25/64	19/32	3/8	4	LGS12-2	97616
3/8	13/32	19/32	3/8	4	LGS12-3	97618
7/16	7/16	11/16	7/16	4-1/2	LGS14-1	97620
7/16	29/64	11/16	7/16	4-1/2	LGS14-2	97622
7/16	15/32	11/16	7/16	4-1/2	LGS14-3	97624
1/2	1/2	25/32	1/2	5	LGS16-1	97626
1/2	33/64	25/32	1/2	5	LGS16-2	97628
1/2	17/32	25/32	1/2	5	LGS16-3	97630
1/4	1/4	13/32	3/8	5-1/2	LGL8-1	97502
1/4	17/64	13/32	3/8	5-1/2	LGL8-2	97504
1/4	9/32	13/32	3/8	5-1/2	LGL8-3	97506
5/16	5/16	1/2	3/8	6	LGL10-1	97508
5/16	21/64	1/2	3/8	6	LGL10-2	97510
5/16	11/32	1/2	3/8	6	LGL10-3	97512
3/8	3/8	19/32	1/2	6-1/2	LGL12-1	97514
3/8	25/64	19/32	1/2	6-1/2	LGL12-2	97516
3/8	13/32	19/32	1/2	6-1/2	LGL12-3	97518
7/16	7/16	11/16	1/2	6-3/4	LGL14-1	97520
7/16	29/64	11/16	1/2	6-3/4	LGL14-2	97522
7/16	15/32	11/16	1/2	6-3/4	LGL14-3	97524
1/2	1/2	25/32	1/2	7	LGL16-1	97526
1/2	33/64	25/32	1/2	7	LGL16-2	97528
1/2	17/32	25/32	1/2	7	LGL16-3	97530

Screw Size	Pilot Diameter	Cutting Lip Diameter	Shank Diameter	Overall Length	Part No.	EDP No.
9/16	9/16	7/8	No.2 Morse	7-1/4	LGT18-1	97702
9/16	37/64	7/8	No.2 Morse	7-1/4	LGT18-2	97704
9/16	19/32	7/8	No.2 Morse	7-1/4	LGT18-3	97706
5/8	5/8	1	No.2 Morse	7-1/2	LGT20-1	97708
5/8	41/64	1	No.2 Morse	7-1/2	LGT20-2	97710
5/8	21/32	1	No.2 Morse	7-1/2	LGT20-3	97712
3/4	3/4	1-3/16	No.2 Morse	8-1/2	LGT24-1	97714
3/4	49/64	1-3/16	No.2 Morse	8-1/2	LGT24-2	97716
3/4	25/32	1-3/16	No.2 Morse	8-1/2	LGT24-3	97718
7/8	7/8	1-3/8	No.3 Morse	9-1/2	LGT28-1	97720
7/8	57/64	1-3/8	No.3 Morse	9-1/2	LGT28-2	97722
7/8	29/32	1-3/8	No.3 Morse	9-1/2	LGT28-3	97724
1	1	1-9/16	No.3 Morse	10-1/2	LGT32-1	97726
1	1-1/64	1-9/16	No.3 Morse	10-1/2	LGT32-2	97728
1	1-1/32	1-9/16	No.3 Morse	10-1/2	LGT32-3	97730

No. 1L

Straight Shanks, Short Type
LGS8, LGS10, LGS12,
LGS14, LGS16

When ordering, specify pilot sizes 1, 2, or 3

Set #1L.1P-EDP No. 99014
Set #1L.2P-EDP No. 99016
Set #1L.3P-EDP No. 99018

No. 2L

Straight Shanks, Long Type
LGL8, LGL10, LGL12,
LGL14, LGL16

When ordering, specify pilot sizes 1, 2, or 3

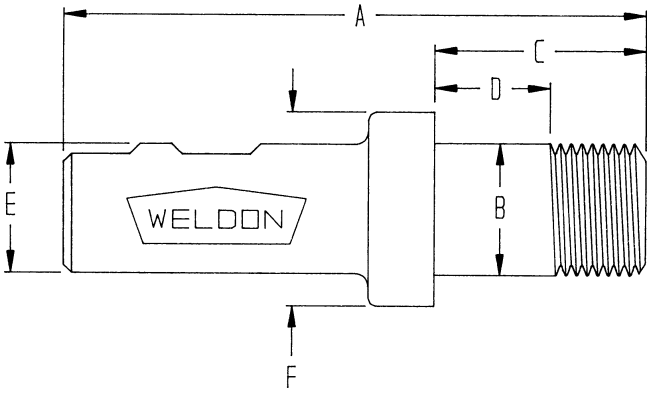
Set #2L.1P-EDP No. 99020
Set #2L.2P-EDP No. 99022
Set #2L.3P-EDP No. 99024

Stub Arbors

Heat Treated • Ground Threads
Face of Nut Ground Square With Thread

Arbors with L.H. Threads are special

Thd.	A	B	C	D	E	F	Key Size	Thread Size	Part No.	EDP No.
R.H.	5-1/2	1/2	1-5/8	3/4	1	7/8	3/32	1/2 x 20	SAR16-7	37410
R.H.	5-1/2	5/8	1-3/4	3/4	1	1	1/8	5/8 x 18	SAR20-7	37420
R.H.	5-1/2	3/4	2	1	1	1-1/8	1/8	5/8 x 18	SAR24-7	37430
R.H.	5-1/2	7/8	2	3/4	1	1-3/8	1/8	7/8 x 14	SAR28-7	37440
R.H.	5-1/2	1	2-3/8	1	1	1-5/8	1/4	1 x 14	SAR32-7	37450
R.H.	5-1/2	1-1/4	2-3/8	1	1-1/4	1-7/8	5/16	1 x 14	SAR40-8	37460



Weldon Stub Arbors are specially designed to be used in place of longer, unwieldy, conventional type arbors for horizontal milling machines. They can be handled with greater ease and convenience and at the same time their initial cost is much less. They are firmly held by the double screw drive and are especially adaptable to tool room and light manufacturing operations. Replacement spacers are available.

Part No. SAR-SET – EDP No. 99012

Arbors may be purchased singly or in a set as shown.

Sharpening Fixtures

97 **MODEL 200 & 200B END MILL SHARPENING FIXTURES AND ACCESSORIES**

Offered in collet or bushing styles for metric or inch end mills.

99 **AXIAL RELIEF FIXTURE FOR COUNTERSINKS AND DEBURRING TOOLS, END RELIEVED CUTTING TOOLS**

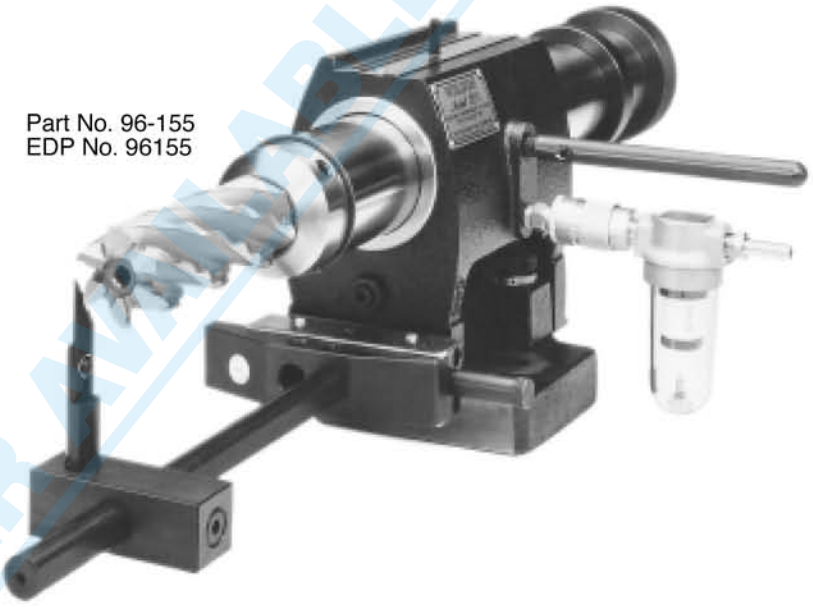
Designed for the sharpening of Weldon single cutting edge countersinks and deburring tools.

Model 200 & 200B

Model 200 (with collets) and 200B (with bushings) air bearing fixtures simplify the resharpening of peripheral cutting edges and end teeth of end mills with Inch or Metric diameter straight shanks and tools with Morse taper shanks. An adjustable rotary cam permits easy selection of proper peripheral relief angles and secondary clearance angles. The cam also controls the setting of relief angles when sharpening end teeth. Features include adjustable sharpening finger for accurate radial positioning of the finger blade, microscope attachment for accurately measuring width of primary lands, micrometer for determining the cutting diameter of end mills during resharpening without removing tools from the fixture.

Model 200B (Bushings)

The Model 200B will accommodate a wide variety of bushings.
Bushings permit easier and faster installation of an end mill in the spindle. The cutting tool is secured in place by a set screw. This assures that the end mill will be sharpened in a manner similar to that in which it will be used. As a result, end mill performance is improved during milling operations and runout is minimized.
Bushings are easy to assemble in the spindle. They are also less expensive than other types of holding devices.



Part No. 96-155
EDP No. 96155

The Model 200 or 200B sharpening fixture comes with one microscope and one micrometer.
When ordering Model 200, specify inch or metric.

Microscope Model 200M (Metric)
Micrometer Model 200M (Metric)
Microscope Model 200I (Inch)
Micrometer Model 200I (Inch)

Note: Model 200B is inch only

The fixture, microscope and micrometer are furnished complete in a metal carrying case.

Part No. 96-159I (inch)
EDP No. 96159
Part No. 96-159M (metric)
EDP No. 96160

Model 200 (Collets)

The Model 200 will accommodate a selection of precision collets to hold inch shanks from 3/16" through 1-1/4" diameter, metric shanks from 4mm through 32mm diameter, as well as adapter bushing for Morse tapered shanks.

NO LONGER AVAILABLE

Bushings, Collets & Accessories

Model 200B Bushings

Bushings for the Model 200B are offered in sizes that will hold standard end mill shanks from 3/16" through 1" in diameter. Other sizes hold shanks from 1/4" to 15/16" in standard increments of 1/16". They are also available for No. 1, 2, and 3 Morse taper shanks. The spindle itself will accommodate a 1-1/4" shank.

Description	Part No.	EDP No.
3/16" I.D. Bushing	96-993	96993
3/8" I.D. Bushing	96-608	96608
1/2" I.D. Bushing	96-607	97607
5/8" I.D. Bushing	96-997	96997
3/4" I.D. Bushing	96-508	96508
7/8" I.D. Bushing	96-509	96509
1" I.D. Bushing	96-510	96510

Model 200 Collets

A selection of precise collets are available to hold inch shanks from 1/8" through 1-1/4" and metric shanks from 4mm through 32mm.

C4 Style Inch

Description	Part No.	EDP No.
1/8" collet	96-170	96170
3/16" collet	96-186	96186
1/4" collet	96-172	96172
5/16" collet	96-173	96173
3/8" collet	96-187	96187
7/16" collet	96-187A	96202
1/2" collet	96-188	96188

C10 Style

Description	Part No.	EDP No.
9/16" collet	96-188A	96200
5/8" collet	96-194	97194
3/4" collet	96-195	97195
7/8" collet	96-196	97196
1" collet	96-197	97197
1-1/4" collet	96-198	97198

C4 Style Metric

Description	Part No.	EDP No.
4.0mm collet	96-179	96179
5.0mm collet	96-180	96180
6.0mm collet	96-199	96199
6.3mm collet	96-181	96181
8.0mm collet	96-182	96182
10.0mm collet	96-183	97183
12.0mm collet	96-184	96184
12.5mm collet	96-185	96185

C10 Style

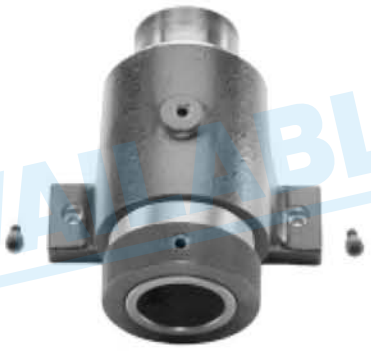
Description	Part No.	EDP No.
16.0mm collet	96-189	97189
20.0mm collet	96-190	96190
25.0mm collet	96-191	96191
31.5mm collet	96-192	97192
32.0mm collet	96-193	97193

End Tooth Sharpening Attachment

End Tooth Sharpening
Attachment for Models 200 and 200B fixtures - A top mounted attachment with indexable spindle for sharpening the end teeth of 2,3,4,6 and 8 flute end mills with inch and metric straight shanks including No. 1,2,3 and 4 (Model 200 only) taper shanks.

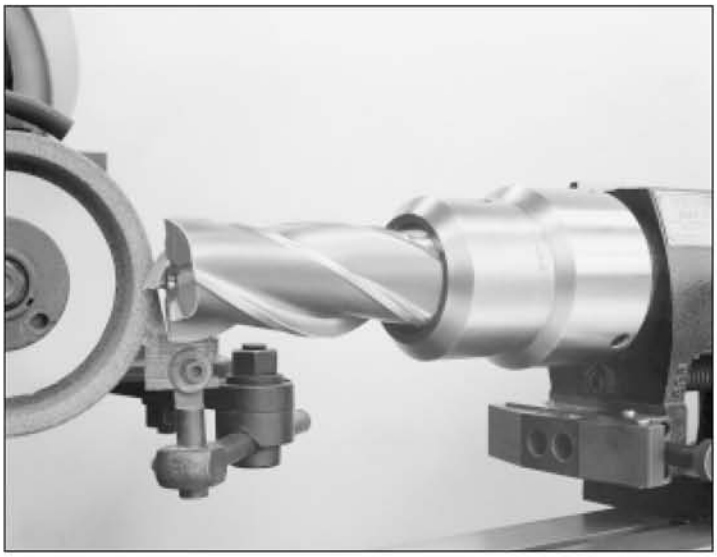
Part No. 96-240 (EDP No. 96240) attachment for Model 200 (pictured)

Part No. 96-245 (EDP No. 96245) attachment for Model 200B



NO LONGER AVAILABLE

Model 200 & 200B Accessories



Part No. 96-300
EDP No. 96300

Ball Bearing Fixture

This precision Fixture (Part #96-300) with a Ball Bearing Spindle is designed for sharpening large diameter end mills or tapered end mills when using the longitudinal traverse of the grinding machine table. NOTE: Ball Bearing Fixture (Part #96-300) consists of ball bearing, spindle, assembly (Part #96-220) and head assembly (Part #96-260).

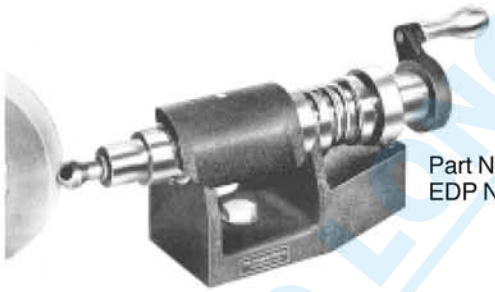
Ball Bearing Spindle Assembly for Models 200 & 200B

In addition to the above fixture a Ball Bearing Spindle assembly (Part #96-220) is available, which fits the housing of a Model 200 or 200B and is designed for sharpening large diameter end mill.

Accessory Holders for Part No. 96-300 or 96-220

Description	Part No.	EDP No.
Holder for Collets I.D.	96-222	96222
#5 Morse I.D.	96-224	96224
1-1/4 inch I.D.	96-232	96232
2 inch I.D.	96-228	96228
2-1/2 inch I.D.	96-229	97229
40mm I.D.	96-225	96225
50mm I.D.	96-226	96226
63mm I.D.	96-227	96227

Axial Relief Sharpening Fixture



Part No. 96-169
EDP No. 96169

This fixture is especially adapted to the sharpening of Weldon single cutting edge countersinks and deburring tools.
This fixture lends itself also to the sharpening of end relieved cutting tools - often referred to as tools with axial relief. The longitudinal movement of the spindle is created by a cam which is mounted on the spindle.

NO LONGER AVAILABLE

Technical Information

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End Mill Cutting Diameter Tolerances

+ .000 - .001	+ .001 - .000	+ .0000 - .0015	+ .003 - .000	+ .005 - .000	+ .0015 + .0010
Items with shank dia. 1/2" and under only.	Items with shank dia. 1/2" and under only.		Items with shank dia. 1-1/4" and under only.	Items with 2" & 2-1/2" dia. shanks.	Close tolerance special purpose.
COAA COASA COBB COBS COBSB COCC CORR CORSR COX COXR COXS COXSR	COA COAS COB COBL COBLF COBMF COC COCL ***COR CORK CORL COW COWE COWR COWS COWSR COXE COXER	*AAC *BB B-K BSF COB-K COSB *COSBB *CC *RR SB *SBB	A *AA AC AE AL ALX AM ASF B BL BLF BMF C COAR CL R RK RKA RKX RL SKB SKX	A AE AEX AL AY B C CL R RK	COA-FC COB-FC

***+ .0000** Tolerance for all double end end mill cutting diameter
- .0025 when shank diameter and cutting diameter are the same.

****COR16-3** Tolerance is +.003
- .000

Crest-Kut End Mills

+ .003 - .003		
KA	KAC	KPAC
KAF	KB	KPSC
KAS	KSC	KPEC
KPA	KC	

Router Bits	+ .010 - .010
Taper Mills (Tolerances for small diameter)	+ .000 - .003 5° & under + .000 - .005 6° & over
Roughing & Conventional Shell End Mills	+ .015 - .000

NAS 986 End Mills

**COAC **COKC	+ .003 - .000

**1/2" Diameter is: +.001
-.000

Ski-Carb™ - Solid Carbide End Mills - Inch sizes

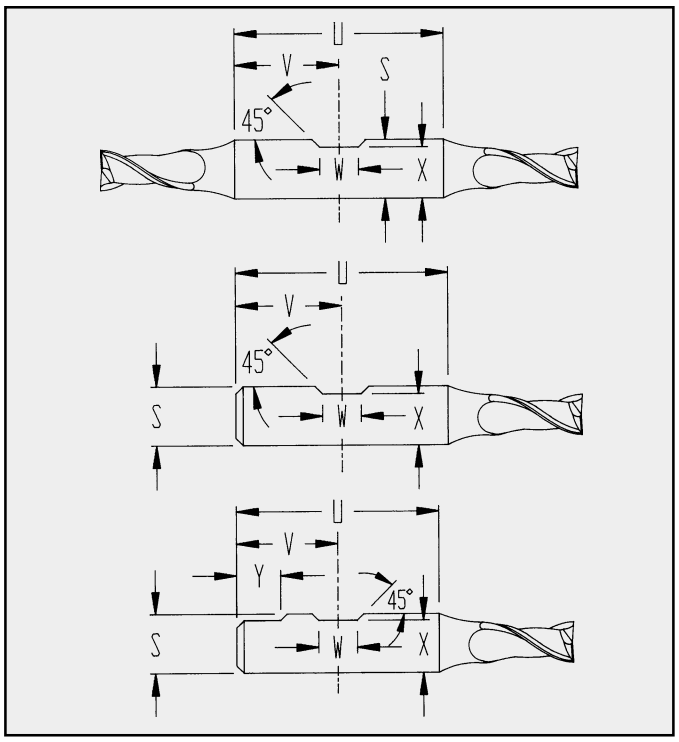
SKXC	+ .0000 - .0005

Bulldog™ Roughing End Mills

Bulldog™ Roughers	+ .005 - .000

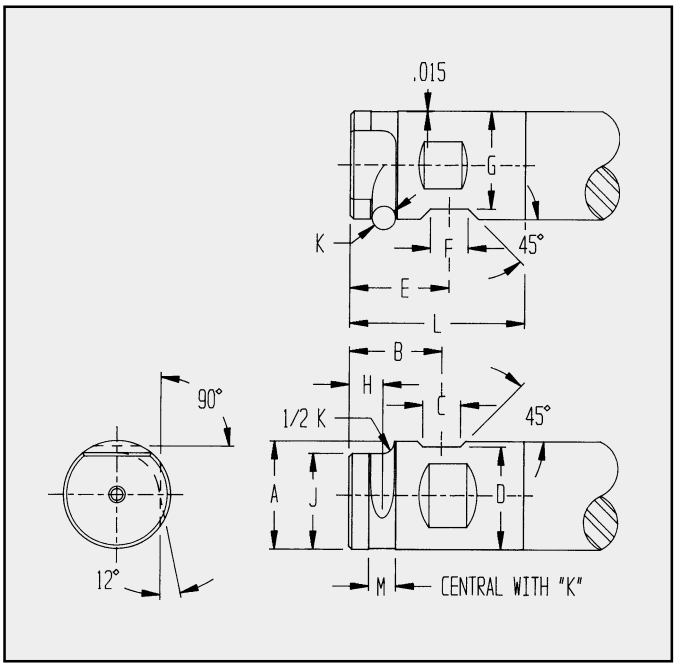
Weldon Shank Dimensions & Tolerances

Standard Weldon Shanks



Combination Shanks for End Mills

Right hand End Mill shank shown.



Dimensions

All dimensions are given in inches.

Dia. of Shank S	Length of Shank U	V	W Min.	W Max	X	Y
3/8	1-9/16	25/32	0.280	0.282	0.325	
1/2	1-25/32	57/64	0.330	0.332	0.440	
5/8	1-29/32	61/64	0.400	0.402	0.560	
3/4	2-1/32	1-1/64	0.455	0.457	0.675	
7/8	2-1/32	1-1/64	0.455	0.457	0.810	1/2
1	2-9/32	1-9/64	0.515	0.517	0.925	1/2
1-1/4	2-9/32	1-9/64	0.515	0.517	1.156	1/2
1-1/2	2-11/16	1-3/16	0.515	0.517	1.406	9/16
2	3-1/4	1-27/32	0.700	0.702	1.900	27/32
2-1/2	3-1/2	1-15/16	0.700	0.702	2.400	27/32

Tolerances

Element	Range	Direction	Tolerance
Diameter of Shank, S	All Sizes	Minus	.0001 to .0005
Length of Shank, U	All Sizes	Plus or Minus	1/32
Dimension, V	All Sizes	Plus or Minus	1/64
Dimension, X	All Sizes	Minus	1/64
Dimension, Y	7/8" to 2-1/2" incl.	Plus or Minus	1/32

Dimensions

All dimensions are given in inches.

Dia. of Shank A	Length of Shank L	B	C	D	E	F
2	3-1/4	1-23/32	.700	1.900	1-3/4	.700
2-1/2	3-1/2	1-15/16	.700	2.400	2	.700

Dia. of Shank A	Length of Shank L	G	H	J	K	M
2	3-1/4	1.809	5/8	1.772	.440	1/2
2-1/2	3-1/2	2.312	3/4	2.245	.503	9/16

Tolerances

Element	Range	Direction
Diameter of Shank, A	Minus	.0001 to .0005
Length of Shank, L	Plus or Minus	1/32
Dimension, B	Plus or Minus	1/64
Dimension, C	Plus	.002
Dimension, D	Minus	1/64
Dimension, E	Plus or Minus	1/64
Dimension, F	Plus or Minus	.005
Dimension, G	Minus	1/64
Dimension, H	Plus	1/64
Dimension, J	Plus or Minus	.002
Dimensin, K	Plus	.003

Suggested Speed & Feed Data for Conventional End Mills

Material	Slot Milling				Peripheral Milling			
	Surface Speed (ft./min.)		Feed per Tooth Chip Load		Surface Speed (ft./min.)		Feed per Tooth Chip Load	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max
ALUMINUM ALLOYS Wrought, Solution Treated, Aged	250	280	.003	.004	600	800	.007	.010
As Cast	300	350	.004	.005	800	1000	.007	.010
MAGNESIUM ALLOYS	450	500	.004	.005	800	1000	.008	.011
BRASS	165	185	.004	.005	275	350	.006	.008
CAST IRON Gray, as cast, A48 Class 30, 35, 40, Pearlitic	55	60	.002	.003	90	125	.004	.005
STEEL Soft Carbon Steel, 1029, also Leaded	100	110	.0025	.003	160	210	.005	.006
AISI 1030-1055 Rc 32, 102,000 PSI, 275-325 BHN	60	70	.002	.0025	70	90	.004	.005
AISI 1060-1095 Rc 42, 136,000 PSI, 325-375 BHN	35	45	.002	.0025	60	70	.004	.005
Medium & High Carbon, Rc 49, 168,000 PSI	25	30	.0005	.001	45	55	.001	.0015
TOOL STEELS S1-S7, L2, L3, L6, Annealed, 175-225 BHN	50	65	.002	.0025	85	110	.004	.005
A2-A10, 01-07, Annealed, 200-250 BHN	45	50	.0015	.002	75	90	.003	.004
D2-D7 Annealed, 200-250 BHN	35	40	.0015	.002	55	65	.003	.004
TITANIUM ALLOYS Commercially Pure, 140-200 BHN	85	95	.005	.006	140	170	.006	.007
5A1-2.5Sn, Annealed	50	55	.004	.005	100	110	.005	.006
6A1-4V Annealed, 310-350 BHN	55	60	.004	.005	90	100	.005	.006
6A1-4V Solution treated, 320-380 BHN	45	50	.004	.005	75	90	.004	.006
6A1-4V-2Sn, Solution treated, 375-420 BHN	45	50	.004	.005	70	80	.004	.006
HIGH TEMP. ALLOYS Hastelloy X, Inconel Nickel Base, wrought, cold drawn	13	15	.003	.004	20	30	.002	.004
Inconel X, 718	7	8	.002	.003	12	15	.002	.003
Monel, Nickel wrought & cast, 115-240 BHN	30	33	.004	.005	65	85	.004	.005
STAINLESS STEEL Free Machining, Annealed or cold drawn	75	85	.002	.0025	125	160	.004	.005
300 Series, cold drawn Austenitic 225-275 BHN	65	75	.002	.0025	110	145	.004	.005
17-4 PH, Annealed, 150-200 BHN	55	60	.0015	.002	90	100	.003	.004
17-4 PH, Hardened, 325-375 BHN	40	45	.0015	.002	65	80	.002	.003

Titanium Nitride coated End Mills: Increase Speed by 25%

Titanium Carbonitride coated End Mills: Increase Speed by 35% and Feed by 10%

Suggested Speed & Feed Data for Crest-Kut® and Bulldog® End Mills

Material	Slot Milling				Peripheral Milling			
	Surface Speed (ft./min.)		Feed per Tooth Chip Load		Surface Speed (ft./min.)		Feed per Tooth Chip Load	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max
ALUMINUM ALLOYS Wrought, Solution Treated, Aged	263	294	.0036	.0048	630	840	.0084	.012
As Cast	315	368	.0048	.006	840	1050	.0084	.012
MAGNESIUM ALLOYS	473	525	.0048	.006	840	1050	.0096	.0132
BRASS	173	194	.0048	.006	289	368	.0072	.0096
CAST IRON Gray, as cast, A48 Class 30, 35, 40, Pearlitic	58	63	.0024	.0036	95	131	.0048	.006
STEEL Soft Carbon Steel, 1029, also Leaded	105	116	.003	.0036	168	221	.006	.0072
AISI 1030-1055 Rc 32, 102,000 PSI, 275-325 BHN	63	74	.0024	.003	74	95	.0048	.006
AISI 1060-1095 Rc 42, 136,000 PSI, 325-375 BHN	37	47	.0024	.003	63	74	.0048	.006
Medium & High Carbon, Rc 49, 168,000 PSI	26	32	.0006	.0012	47	58	.0012	.0018
TOOL STEELS S1-S7, L2, L3, L6, Annealed, 175-225 BHN	53	68	.0024	.003	89	116	.0048	.006
A2-A10, 01-07, Annealed, 200-250 BHN	47	53	.0018	.0024	79	95	.0036	.0048
D2-D7 Annealed, 200-250 BHN	37	42	.0018	.0024	58	68	.0036	.0048
TITANIUM ALLOYS Commercially Pure, 140-200 BHN	89	100	.006	.0072	147	179	.0072	.0084
5A1-2.5Sn, Annealed	53	58	.0048	.006	105	116	.006	.0072
6A1-4V Annealed, 310-350 BHN	58	63	.0048	.006	95	105	.006	.0072
6A1-4V Solution treated, 320-380 BHN	47	53	.0048	.006	79	95	.0048	.0072
6A1-4V-2Sn, Solution treated, 375-420 BHN	47	53	.0048	.006	74	84	.0048	.0072
HIGH TEMP. ALLOYS Hastelloy X, Inconel Nickel Base, wrought, cold drawn	14	16	.0036	.0048	21	32	.0024	.0048
Inconel X, 718	7	8	.0024	.0036	13	16	.0024	.0036
Monel, Nickel wrought & cast, 115-240 BHN	32	35	.0048	.006	68	89	.0048	.006
STAINLESS STEEL Free Machining, Annealed or cold drawn	79	89	.0024	.003	131	168	.0048	.006
300 Series, cold drawn Austenitic 225-275 BHN	68	79	.0024	.003	116	152	.0048	.006
17-4 PH, Annealed, 150-200 BHN	58	63	.0018	.0024	95	105	.0036	.0048
17-4 PH, Hardened, 325-375 BHN	42	47	.0018	.0024	68	84	.0024	.0036

Titanium Nitride coated End Mills: Increase Speed by 25%

Titanium Carbonitride coated End Mills: Increase Speed by 35% and Feed by 10%

Suggested Cutting Speed Ranges When Using DB&CS Tools to Cut Various Work Materials

Materials	Cutting Speed (sfm)*
STEEL	
Up to 240 Brinell (24Rc)	50-70
Over 240 to 320 Brinell (24 to 35 R_c)	30-50
CAST STEEL	40-60
STAINLESS STEEL	30-50
CAST IRON	
Regular	60-80
Hard	5-30
NON-FERROUS	
Brass	150-200
Aluminum–Magnesium	150-200
Copper	80-120
Bronze	
Regular	70-90
Hard	20-40
TITANIUM	
Unalloyed	40-60
Alloyed	30-50
ZIRCONIUM	40-60
HIGH TEMPERATURE ALLOYS	
Ferritic Low Alloys	30-50
Austenitic Alloys	15-25
Nickel Base Alloys	5-15
Cobalt Base Alloys	5-10
NON-METALLICS	
Silicon Free	80-120
Silicon Containing	20-40

*Surface Feet Per Minute (sfm) = RPM x Large Diameter of Countersink in inches x .262

NOTE:
Hand feed recommended • Use light feed pressure • Allow tool to cut at its own rate • Always use with suitable cutting lubricant

Suggested Cutting Speeds (S.F.M.)

The Following Points Require Consideration When Using The Suggested Cutting Speeds (S.F.M.) Shown

1. Workpiece material class and hardness must be known before selecting cutting speed.

2. Hard materials necessitate low cutting speeds.

3. Highly alloyed materials containing nickel, chromium, cobalt, molybdenum, tungsten and such, necessitate low cutting speeds even though they are not considered “hard.”

4. Soft low alloy materials can be milled at the higher cutting speeds.

5. If experience with a work material is lacking, it is best to start at the lowest cutting speed shown for that material and gradually increase speed until best results are obtained.

6. The range of cutting speed for each class of material is quite broad to allow for variables in each individual situation that could be compensated for by more or less cutting speed.

7. Longer tool life is obtained by operating in the lower cutting speeds with a generous feed rate per tooth when the diameter and length of end mill and the set-up in general will permit.

8. If the selection of spindle speeds on the milling machine is so limited that it is impossible to run the end mill within the suggested range shown, then use whatever speed is available below the lowest in the range to prevent damage to the end mill.

9. Coolants are very necessary to obtain maximum end mill life and to permit operation in the higher cutting speed ranges.

10. When chips and end mill become discolored from heat, it is an indication of excessive cutting speed which will result in premature damage to tool.

11. When cutting edges dull rapidly without tool or chip discoloration, it is an indication of highly abrasive workpiece or high resistance to chip separation, and cutting speed must be reduced.

12. Maximum end mill life cannot be realized if erratic hand feeding methods are used which cause a variation in tooth load and which invariably leads to tool tooth corner chipping or breakage at tool shank. Controlled power feed is recommended.

13. Climb cutting (down milling) where and when possible will permit cutting speeds in the higher ranges and will also extend end mill life.

14. Higher production rates are possible with multiple-flute end mills since feed per tooth is multiplied by the number of teeth enabling a proportional increase in the feed rate (inches per minute).

Crest-Kut® End Mills

Application of a Crest-Kut end mill is no different than that of a conventional end mill. Common sense should be applied when determining the cutting speed. Remember that they are made of high speed steel which will start destruction at 1050 degrees Fahrenheit or 565.5 degrees Celsius, unless of course the material has a cobalt content, in which case the temperature range is slightly higher.

The advantage is in the greater feed rates which are attainable. Feed rates can be increased from 10 to 35 (and more) percent, depending on the material being cut, the stablility of the machine and the rigidity of the set up. Controlled power feed is recommended.

Several benefits derived and the advantages gained are as follows:

1. Crest-Kut can remove larger amounts of material in less time because of the chip breaker feature.

2. The length of the effective cutting edges is extended because of the sinusoidal wave, greatly reducing chatter and vibration, thereby extending tool life.

3. Good work finishes are obtained.

4. Unlike other roughing end mills, Crest-Kut can be sharpened conventionally with variable clearances for different materials.

5. End tooth radii can be easily added.

It is difficult to find one simple and specific answer to the question so often asked: “To what minimum diameter should an end mill be reground?” Difficult, because the end mill user of today has at his disposal an unlimited combination of end mill and milling machine types, sizes, and styles, still further complicated by the endless variety of workpieces, materials, and conditions.

To this complexity we must add the very important factors, listed below, which must be given prior consideration before the above question can be properly answered.

(a) The most obvious – as the peripheral cutting edges are reground, there is a loss in diameter. This progressively reduces the cross-sectional area, permitting greater deflection under load. Compare Figs. 1A and 1B.

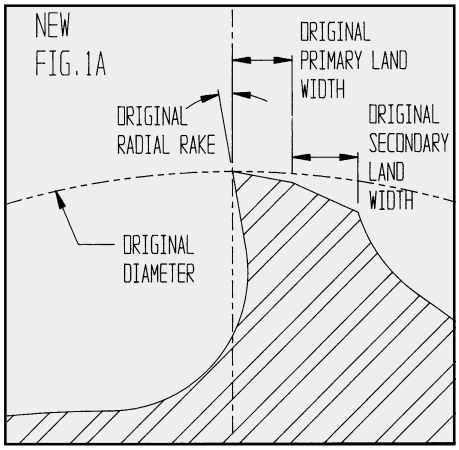
(b) With each regrind and reduction in diameter, there is a subsequent and significant reduction in radial rake. This is very important because efficient metal removal is highly dependent on the end mill having sufficient rake angle for the material being machined. In conjunction with the reduction in diameter, there is a slight change in helix angle which further affects the dynamic rake of the end mill. Compare Figs. 1A and 1B.

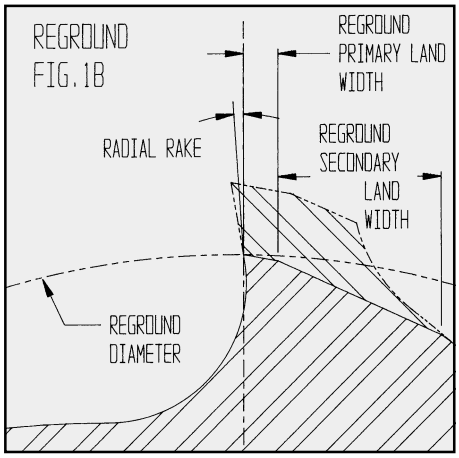
(c) As the diameter is reduced, end mill tooth geometry causes a rapid increase of width of the secondary land, thereby increasing regrinding time. Compare Figs. 1A and 1B.

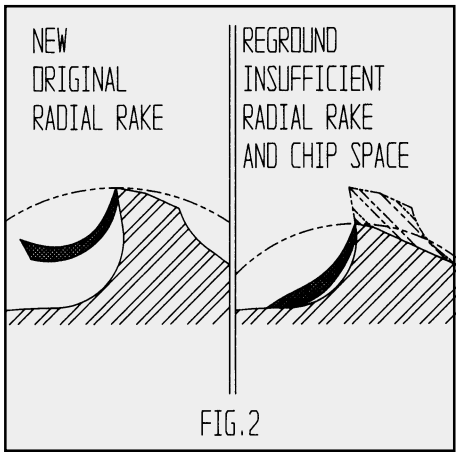
(d) As diameter is reduced, the flute depth is also reduced proportionately, and can reach a point where chip handling ability is impaired to such a degree that inefficient feed rates must be employed. (See Fig. 2.)

(e) For every 1% reduction in end mill diameter (as a result of resharpening), there is a 1-1/2% to 2% DECREASE in cutting efficiency. The decrease continues at this rate until diameter reduction reaches 15%, after which each 1% further reduction results in an additional efficiency loss of 3% to 4%. This also pinpoints the fact that loss of cutting tooth rake, resulting from end mill diameter reduction through resharpening, is the principal reason for cutting torque increase or loss of efficiency.

For these reasons, and as a general recommendation, we advise a 12% to 14% reduction of end mill diameter, based on standard tool diameter, as being the economical limit beyond which an end mill cannot be ground and still perform effectively. The limits explain why Weldon will refuse to alter standard end mills if their reduction in cutting diameters is great enough to adversely affect their cutting ability.







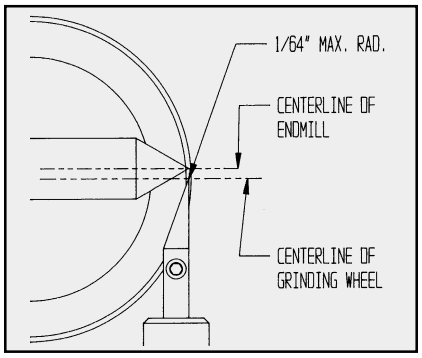
Permissible Reduction of Flute Diameter for “Regrinding” Purposes

New Diameter	Amount of Reduction (Approximate Percent of the “new” Diameter)				
	2 Flutes	3 Flutes	4 Flutes	5 Flutes	6 Flutes
Under 3/8	13%	13%	13%	–	–
3/8 - 5/8	14%	14%	13%	12%	–
11/16 - 1	14%	14%	14%	13%	–
Over 1	14%	14%	14%	13%	12%

Resharpening Crest Kut® & Roughing End Mills

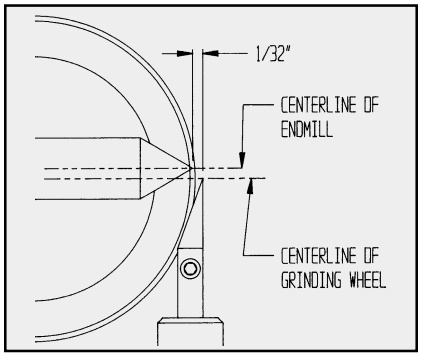
Resharpening Crest-Kut End Mills

Be sure to use these two important procedures...



Resharpening Procedure No. 1

Set-Up for Primary Relief Angle
Use a sharp but smooth pointed finger. It is important that the radius on the finger be no larger than
1/64 of an inch.



Resharpening Procedure No. 2

Set-Up for Secondary Clearance Angle
Move the finger approximately **1/32 of an inch** to the right, toward the shank of the end mill. This second adjustment is **extremely important** and insures a parallel primary land width when the secondary clearance angle is ground.

Resharpening Roughing End Mills

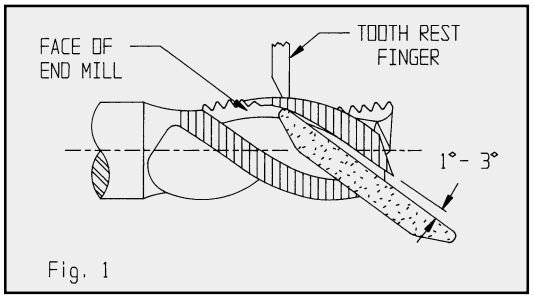


Fig. 1

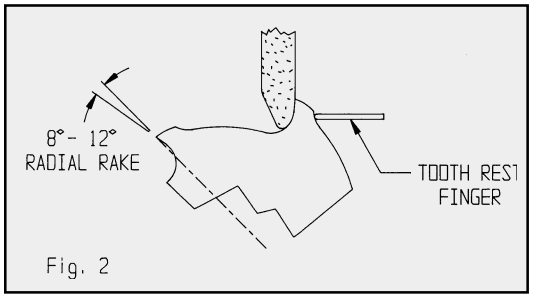


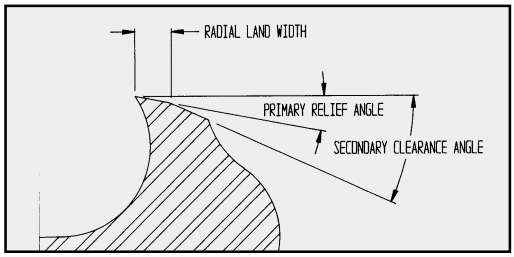
Fig. 2

Roughers are sharpened by grinding the radial rake face and fillet of the flute on a tool and cutter grinding machine using a saucer shaped grinding wheel. Dress the wheel to match the form of the flute face from the OD to the fillet. The grinding head should be turned to an angle slightly greater than the helix angle of the end mill (1˚ to 3˚ extra). This allows the leading edge of the wheel to hollow grind the rake face (Figure 1). Typically, the finished hook measures 8˚ to 12˚.

A tooth support finger is required to insure that the proper lead is maintained. For this type of rougher cutter, the support finger rests on the back of the tooth being sharpened, located below the form (Figure 2).

It is important to remove the entire wear land when sharpening tools. The tool can be spun-ground on the periphery to establish a guide for the amount of OD metal to be removed. Regrinding can generate considerable heat and care should be taken not to burn the cutting edge.

Cutter Clearance Chart for Conventional Inch End Mills



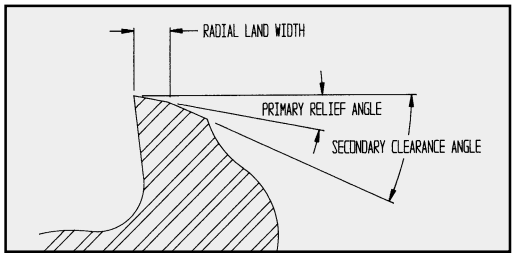
End Mill Diameter (Inch)	Primary Relief Angle	Secondary Clearance Angle	Primary Land Width (Inch)
1/16"	22°	32°	.005/.007
3/32"	18°	28°	.005/.007
1/8"	16°	28°	.005/.007
5/32"	15°	26°	.007/.009
3/16"	14°	26°	.007/.009
7/32"	13°	24°	.007/.009
1/4"	12°	22°	.007/.009
9/32"	12°	21°	.009/.012
5/16"	12°	21°	.009/.012
11/32"	11°	19°	.009/.012
3/8"	11°	19°	.009/.012
13/32"	11°	19°	.012/.016
7/16"	11°	19°	.012/.016
15/32"	10°	19°	.012/.016
1/2"	10°	18°	.012/.016
9/16"	10°	18°	.016/.020
5/8"	10°	18°	.016/.020
11/16"	9°	18°	.016/.020
3/4"	9°	17°	.016/.020
13/16"	9°	17°	.020/.025
7/8"	9°	17°	.020/.025
15/16"	8°	16°	.020/.025
1"	8°	16°	.020/.025
1-1/8"	8°	14°	.025/.030
1-1/4"	7°	14°	.025/.030
1-3/8"	7°	13°	.025/.030
1-1/2"	7°	13°	.025/.030
1-5/8"	7°	13°	.030/.035
1-3/4"	6°	12°	.030/.035
1-7/8"	6°	12°	.030/.035
2"	6°	12°	.030/.035
2-1/4"	5°	11°	.035/.040
2-1/2"	5°	11°	.035/.040
2-3/4"	5°	11°	.035/.040
3"	5°	11°	.035/.040
3-1/2"	5°	11°	.035/.040
4"	4°	10°	.040/.045
5"	4°	10°	.040/.045
6"	4°	10°	.040/.045

Cutter Clearance Chart for NAS 986 Type 46 and 66 End Mills

End Mill Diameter (Inch)	Primary Relief Angle	Secondary Clearance Angle	Primary Land Width (Inch)
1/2"	12°	20°	.013/.023
5/8"	12°	20°	.013/.023
3/4"	11°	20°	.015/.025
7/8"	11°	20°	.015/.025
1"	10°	20°	.020/.030
1-1/4"	10°	20°	.020/.030
1-1/2"	10°	20°	.020/.030
2"	9°	18°	.023/.033

Materials such as stainless steel, titanium, zirconium and the high-temperature alloys are milled more successfully when cutting edge reliefs are increased approximately 30% to 50% over angles listed above.
Dimensions shown are to Weldon specifications.

Cutter Clearance Chart for Crest-Kut® Inch End Mills



With 2 & 3 Flutes

Note End Teeth 7° Relief Angle

End Mill Diameter (Inch)	Primary Relief Angle	Secondary Clearance Angle	Primary Land Width (Inch)
1/2"	13°	29°	.012/.016
5/8"	13°	29°	.016/.020
3/4"	12°	28°	.016/.020
7/8"	12°	27°	.020/.025
1"	11°	26°	.020/.025
1-1/8"	10°	25°	.025/.030
1-1/4"	9°	23°	.025/.030
1-1/2"	9°	21°	.025/.030
1-3/4"	8°	20°	.030/.035
2"	8°	20°	.030/.035
2-1/4"	7°	18°	.035/.040
2-1/2"	7°	18°	.035/.040
2-3/4"	7°	18°	.035/.040
3"	7°	18°	.035/.040
3-1/2"	7°	18°	.035/.040
4"	6°	16°	.040/.045
5"	6°	16°	.040/.045
6"	6°	16°	.040/.045

With 4 & More Flutes

Note End Teeth 6° Relief Angle

End Mill Diameter (Inch)	Primary Relief Angle	Secondary Clearance Angle	Primary Land Width (Inch)
3/8"	11°	19°	.009/.012
1/2"	10°	18°	.012/.016
5/8"	10°	18°	.016/.020
3/4"	9°	17°	.016/.020
7/8"	9°	17°	.020/.025
1"	9°	17°	.020/.025
1-1/8"	9°	17°	.025/.030
1-1/4"	9°	17°	.025/.030
1-1/2"	9°	17°	.025/.030
1-3/4"	8°	16°	.030/.035
2"	8°	16°	.030/.035
2-1/4"	7°	15°	.035/.040
2-1/2"	7°	15°	.035/.040
2-3/4"	7°	15°	.035/.040
3"	7°	15°	.035/.040
3-1/2"	7°	15°	.035/.040
4"	6°	13°	.040/.045
5"	6°	13°	.040/.045
6"	6°	13°	.040/.045

Crest-Kut end mills may be reduced by 12% of their original diameter. They may be reduced by 15% under some conditions, but they will probably need a third clearance angle and their cutting action will only be marginal.

UniLead® Eliminates Costly CNC Reprogramming And Repetitive Sine Bar Set-Ups When Resharpening End Mills

Available in over 500 Sizes & Styles.

- **Single & Double End**
  2, 3, 4 Flute High Speed Steel & 8% COBALT
- **Single & Double End**
  2, 4, 6 Flute Ball End-High Speed Steel & 8% COBALT
- **SKI-CARB™**
  All sizes
- **NAS 986**
  All sizes

Leads for 30° Helix

Diameter	Lead
0.4375	2.3806
0.4688	2.5507
0.5000	2.7207
0.5625	3.0608
0.6250	3.4009
0.6875	3.7410
0.7500	4.0810
0.8125	4.4211
0.8750	4.7612
0.9375	5.1013
1.0000	5.4414
1.1250	6.1216
1.2500	6.8017
1.3750	7.4819
1.5000	8.1621
1.6250	8.8423
1.7500	9.5224
1.8750	10.2026
2.0000	10.8828
2.2500	12.2431
2.5000	13.6035
3.0000	16.3242

Leads for Ski-Carb 45° Helix

Diameter	Lead
0.2500	0.7854
0.3125	0.9817
0.3750	1.1781
0.5000	1.5708
0.6250	1.9635
0.7500	2.3562
1.0000	3.1416

Leads for 35° Helix, NAS 986 Type 46 and 66

Diameter	Lead
0.5000	2.2433
0.6250	2.8042
0.7500	3.3650
0.8750	3.9258
1.0000	4.4867
1.2500	5.6083
1.5000	6.7300
2.0000	8.9733

NOTE: Leads are in inches.

Until The Weldon Tool Company recently introduced *UniLead*, manufacturers of end mills had permitted a deviation of as much as +/-1.5 degrees in the helix angle forming the flutes of these products. Consequently, the differences between individual tools caused problems for the user when it came time to resharpen the end mills using CNC or sine bar resharpening equipment. The problems revolve around lead, defined by engineers as the axial advance of a helical cutting edge in one turn around the axis.

This variation among tools means there are literally hundreds of different leads among these products which translates into a vast amount of time when preparing to resharpen a tool.

New CNC end mills from The Weldon Tool Company with *UniLead* precision and marked leads solve these problems by completely eliminating any variance. With Weldon, the customer is guaranteed that all end mills of the same diameter and helix angle have identical leads. *UniLead* markings are published so that the measurements can be programmed, sorted and recalled each time a *UniLead* end mill needs resharpening.

The development of *UniLead*, while it was theoretically possible, was very difficult to achieve in the real world of manufacturing. It has been made possible through Weldon's substantial investments in computer controlled equipment.

UniLead is not a measured lead, but a lead manufactured to a specific design criteria. All Weldon CNC end mills of the same diameter and helix angle are manufactured with the same lead, tool to tool...lot to lot.

This unique lead feature permits the use of only one lead per diameter and helix to be programmed into CNC machines and single set ups with sine bar resharpening equipment, thus eliminating manual measuring, constant reprogramming and equipment set ups.

Weldon CNC end mills are available in a large range of standard sizes and styles. A broad range of end mill blanks are also available for those who wish to finish their own end mills.

Decimal Equivalent & End Mill Calculation Charts

Half	4ths	8ths	16ths	32nds	64ths	Decimal
					1/64	.015625
				1/32		.03125
					3/64	.046875
			1/16			.0625
					5/64	.078125
				3/32		.09375
					7/64	.109375
		1/8				.1250
					9/64	.140625
				5/32		.15625
					11/64	.171875
			3/16			.1875
					13/64	.203125
				7/32		.21875
					15/64	.234375
	1/4					.2500
					17/64	.265625
				9/32		.28125
					19/64	.296875
			5/16			.3125
					21/64	.328125
				11/32		.34375
					23/64	.359375
		3/8				.3750
					25/64	.390625
				13/32		.40625
					27/64	.421875
			7/16			.4375
					29/64	.453125
				15/32		.46875
					31/64	.484375
1/2						.5000

One	4ths	8ths	16ths	32nds	64ths	Decimal
					33/64	.515625
				17/32		.53125
					35/64	.546875
			9/16			.5625
					37/64	.578125
				19/32		.59375
					39/64	.609375
		5/8				.6250
					41/64	.640625
				21/32		.65625
					43/64	.671875
			11/16			.6875
					45/64	.703125
				23/32		.71875
					47/64	.734375
	3/4					.7500
					49/64	.765625
				25/32		.78125
					51/64	.796875
			13/16			.8125
					53/64	.828125
				27/32		.84375
					55/64	.859375
		7/8				.8750
					57/64	.890625
				29/32		.90625
					59/64	.921875
			15/16			.9375
					61/64	.953125
				31/32		.96875
					63/64	.984375
1						1.0000

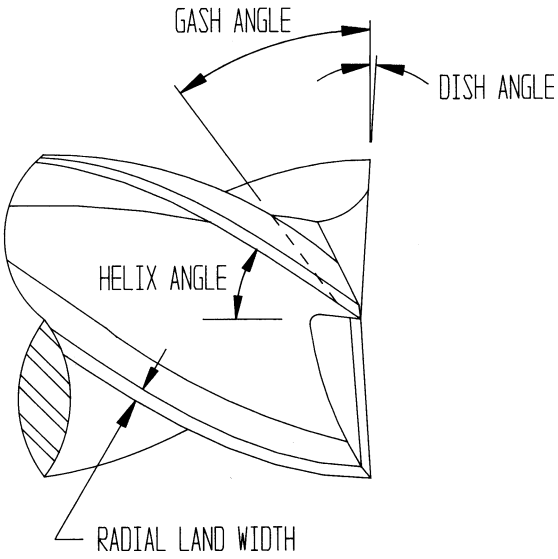
END MILL CALCULATIONS

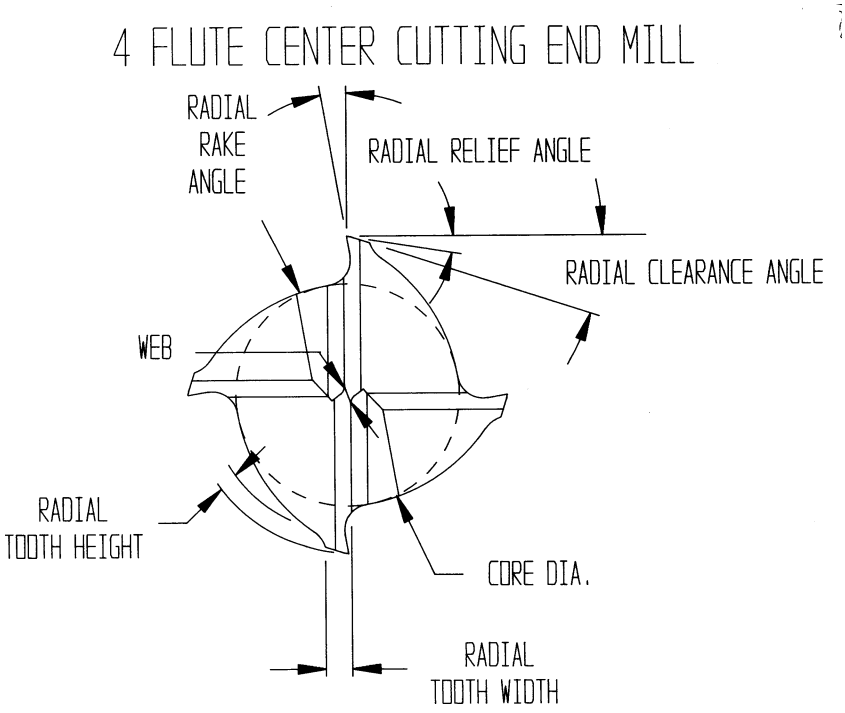
Parameter	Formulas
Cutting speed, sfm	$sfm = .262 \times D_m \times rpm$
Revolutions per minute (rpm)	$rpm = 3.82 \times \frac{sfm}{D_m}$
Feed rate, in/min	$f_m = f_t \times n \times rpm$
Feed per tooth, in	$f_t = \frac{f_m}{n \times rpm}$
Cutting time, min	$t = \frac{L}{f_m}$
Rate of metal removal, cu in/min	$mrr = w \times d \times f_m$

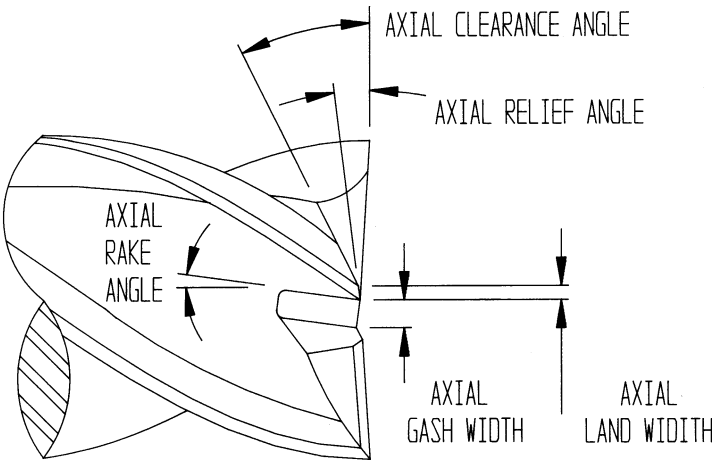
SYMBOL DEFINITIONS

D_m = Diameter of milling cutter, inches
rpm = Revolutions per minute of cutter
sfm = Cutting speed, feet per minute
f_m = Feed rate, inches per minute
f_t = Feed, inches per tooth
n = Number of teeth in cutter
mrr = Rate of metal removed, cubic inches per minute
t = Cutting time, minutes
L = Length of cut, inches
d = Depth of cut, inches
w = Width of cut, inches

End Mill Nomenclature • 4 Flute Cutting End Mill







Taps Test Order Request

T1

Test No.

Ship To: Address and Directions:

Date: _____

Order No: _____

Quantity: _____

Requested by: _____

Distributor: _____

T2

Customer: _____ Phone: _____

Address: _____ Fax: _____

Contact: _____

Title: _____ Tap Presently Being Used: _____

Tool Marking, History or Info: _____

Normal Order Qty.: _____ Normal Release Qty.: _____ Release Frequency: _____

T3

Part Description: _____

Class of Fit Being Tapped: _____

Part Material: _____

Part Hardness: _____

Coolant Make: _____

Coolant Type:

☐ None ☐ Water Soluble

☐ Oil ☐ Synthetic

☐ Other: _____

Drill Size: _____

Hole Depth: _____ Thread Lgth: _____

☐ Through Hole ☐ Blind Hole

☐ Other: _____

T4

Projection or

Tap Size: _____ H-Limit: _____

Size, Threads Per Inch & Hand

Tap Type: _____ Matl.: _____

Striaght Flute, Spiral Flute & Hand, Spiral Point, Forming

No. of Flutes: _____ Spiral: Hi Med Low

Style of Chamfer or Thds. Pointed (cirlce one)

☐ Taper ☐ Plug

☐ Bottom ☐ Other: _____

Type of Surface Treatment

☐ None ☐ Chrome Plate

☐ Nitride ☐ TiN Coating

☐ Oxide ☐ TiCN Coating

☐ Nitride/Oxide ☐ Other: _____

☐ Samples ☐ Sketch or Dwg.

T5

Machine Make & Model, Tap Driver: _____

Tapping Speed: _____

(Note if revolutions or feet per minute)

Available Spindle

Horsepower: _____

☐ Tap Used Vertically ☐ Tap Used Horizontally

T6

Provide Any Additional Information, Comments or Suggestions: _____

Record Additional Information, Comments or Suggestions on Other Side

Cutting Speeds for Taps

UNC/UNF and NPT/NPTF																			
		Surface Feet Per Minute																	
Tap Sizes	Pipe	5'	10'	15'	20'	25'	30'	40'	50'	60'	70'	80'	90'	100'	110'	120'	130'	140'	150'
0		318	637	955	1273	1592	1910	2546	3183	3820	4456	5093	5729	6366	7003	7639	8276	8913	9549
1		273	546	819	1046	1308	1570	2093	2617	3140	3663	4186	4710	5233	5756	6279	6805	7326	7849
2		212	424	637	888	1110	1333	1777	2221	2665	3109	3554	3999	4442	4886	5330	5774	6218	6662
3		191	382	573	772	964	1157	1543	1929	2315	2701	3086	3472	3858	4244	4629	5015	5401	5787
4		174	347	521	682	853	1023	1364	1705	2046	2387	2728	3069	3411	3751	4092	4434	4775	5116
5		147	294	441	611	764	917	1222	1528	1833	2139	2445	2750	3056	3361	3667	3973	4278	4584
6		136	273	409	553	691	829	1106	1382	1659	1935	2212	2488	2766	3042	3318	3595	3871	4148
8		119	239	358	466	583	699	932	1165	1398	1631	1864	2097	2330	2563	2796	3029	3262	3495
10		101	201	302	402	502	603	804	1005	1205	1406	1607	1808	2009	2210	2411	2612	2813	3014
12		87	174	260	354	442	531	707	884	1061	1238	1415	1592	1769	1945	2122	2300	2476	2653
1/4		76	153	229	306	382	458	611	764	917	1070	1222	1375	1528	1681	1833	1986	2139	2292
5/16		62	123	185	245	306	367	489	611	733	856	978	1100	1222	1345	1467	1589	1711	1833
3/8		50	101	151	204	255	305	407	509	611	713	815	917	1019	1120	1222	1324	1426	1528
7/16	1/8	43	87	130	175	219	262	349	437	524	611	698	786	873	960	1048	1135	1222	1310
1/2	–	38	76	115	153	191	229	305	382	458	535	611	688	764	840	917	993	1070	1146
9/16	1/4	34	68	102	137	172	206	274	342	410	478	547	616	683	752	820	888	952	1020
5/8	–	32	64	96	122	153	183	244	306	367	428	489	550	611	672	733	794	856	917
11/16	3/8	28	55	83	111	138	167	222	278	333	389	444	500	556	611	667	722	778	833
3/4	–	25	51	76	102	128	153	203	255	305	357	407	458	509	560	611	662	713	764
7/8	1/2	22	43	65	87	109	131	175	218	262	306	350	392	437	480	524	568	611	655
1	–	19	38	57	76	96	115	153	191	230	268	305	344	382	420	458	497	535	573
1-1/8	3/4	17	34	51	68	84	102	136	170	204	238	272	306	340	373	407	441	475	509
1-1/4	–	15	31	46	61	76	92	122	153	183	214	244	275	305	336	367	397	428	458
1-3/8	1	14	28	42	56	69	83	111	139	167	194	222	250	278	306	333	361	389	417
1-1/2	–	13	25	38	51	63	76	102	127	153	178	204	229	255	280	305	331	356	382
1-5/8		12	23	35	47	59	71	94	118	141	165	188	212	235	259	282	306	329	353
1-3/4		11	22	33	44	55	65	87	109	131	153	175	196	218	240	262	284	306	327
1-7/8		10	20	30	41	51	61	81	102	122	143	163	183	204	224	244	265	285	306
2		9	19	29	38	48	57	76	96	115	134	153	172	191	210	229	248	267	287
METRIC TAPS																			
M 1.0		490	979	1469	1959	2449	2938	3918	4897	5877	6856	7836	8815	9795	10774	11754	12733	13713	14692
M 2.0		242	484	725	967	1209	1451	1934	2418	2901	3385	3868	4352	4835	5319	5803	6286	6770	7253
M 3.0		162	324	486	647	809	971	1295	1619	1942	2266	2590	2914	3237	3561	3885	4208	4532	4856
M 3.5		138	277	415	554	692	830	1107	1384	1661	1938	2214	2491	2768	3045	3322	3599	3875	4152
M 4.0		122	243	365	487	608	730	973	1217	1460	1703	1946	2190	2433	2676	2920	3163	3406	3650
M 5.0		97	194	291	388	485	582	776	970	1163	1357	1551	1745	1939	2133	2327	2521	2715	2909
M 6.0		81	162	243	324	405	486	647	809	971	1133	1295	1457	1619	1781	1942	2104	2266	2428
M 7.0		69	138	208	277	346	415	554	692	830	969	1107	1246	1384	1522	1661	1799	1938	2076
M 8.0		61	121	182	243	303	364	485	606	728	849	970	1091	1213	1334	1455	1577	1698	1819
M 10.0		48	97	145	194	242	291	388	485	582	679	776	873	970	1067	1163	1260	1357	1454
M 12.0		40	81	121	162	202	243	324	405	486	567	647	728	809	890	971	1052	1133	1214
M 14.0		35	69	104	139	173	208	277	347	416	485	555	624	693	763	832	901	971	1040
M 16.0		30	61	91	121	152	182	243	303	364	424	485	546	606	667	728	788	849	910
M 18.0		27	54	81	108	135	162	216	269	323	377	431	485	539	593	547	700	754	808
M 20.0		24	49	73	97	121	146	194	243	291	340	388	437	485	534	582	631	680	728
M 22.0		22	44	66	88	110	132	176	221	265	309	353	397	441	485	529	573	566	606
M 24.0		20	40	61	81	101	121	162	202	243	283	323	364	404	445	485	526	618	662
M 27.0		18	36	54	72	90	108	144	180	216	252	287	323	359	395	431	467	503	539
M 30.0		16	32	49	65	81	97	129	162	194	226	259	291	323	356	388	420	453	485

Tap Recommendations for Classes 2, 3, 2B & 3B Unified and American Screw Threads

Size	Threads Per Inch		Recommended Tap For Class Of Thread				Min. All Classes (Basic)	Pitch Diameter Limits For Class Of Thread			
	NC AND UNC	NF AND UNF	Class 2	Class 3	Class 2B	Class 3B		Max. Class 2	Max. Class 3	Max. Class 2B	Max. Class 3B
0	**	80	G H1	G H1	G H2	G H1	.0519	.0536	.0532	.0542	.0536
1	64	**	G H1	G H1	G H2	G H1	.0629	.0648	.0643	.0655	.0648
1	**	72	G H1	G H1	G H2	G H1	.0640	.0658	.0653	.0665	.0659
2	56	**	G H1	G H1	G H2	G H1	.0744	.0764	.0759	.0772	.0765
2	**	64	G H1	G H1	G H2	G H1	.0759	.0778	.0773	.0786	.0779
3	48	**	G H1	G H1	G H2	G H1	.0855	.0877	.0871	.0885	.0877
3	**	56	G H1	G H1	G H2	G H1	.0874	.0894	.0889	.0902	.0895
4	40	**	G H2	G H1	G H2	G H2	.0958	.0982	.0975	.0991	.0982
4	**	48	G H1	G H1	G H2	G H1	.0985	.1007	.1001	.1016	.1008
5	40	**	G H2	G H1	G H2	G H2	.1088	.1112	.1105	.1121	.1113
5	**	44	G H1	G H1	G H2	G H1	.1102	.1125	.1118	.1134	.1126
6	32	**	G H2	G H1	G H3	G H2	.1177	.1204	.1196	.1214	.1204
6	**	40	G H2	G H1	G H2	G H2	.1218	.1242	.1235	.1252	.1243
8	32	**	G H2	G H1	G H3	G H2	.1437	.1464	.1456	.1475	.1465
8	**	36	G H2	G H1	G H2	G H2	.1460	.1485	.1478	.1496	.1487
10	24	**	G H3	G H1	G H3	G H3	.1629	.1662	.1653	.1672	.1661
10	**	32	G H2	G H1	G H3	G H2	.1697	.1724	.1716	.1736	.1726
12	24	**	G H3	G H1	G H3	G H3	.1889	.1922	.1913	.1933	.1922
12	**	28	G H3	G H1	G H3	G H3	.1928	.1959	.1950	.1970	.1959

The above recommended taps normally produce the Class of Thread indicated in average materials when used with reasonable care. However, if the tap specified dies not give a satisfactory gage fit in the work, a choice of some other limit tap will be necessary.

Tap Recommendations

Tap Recommendations for Classes 2, 3, 2B & 3B Unified and American Screw Threads

Size	Threads Per Inch		Recommended Tap For Class Of Thread				Min. All Classes (Basic)	Pitch Diameter Limits For Class Of Thread			
	NC AND UNC	NF AND UNF	Class 2	Class 3	Class 2B	Class 3B		Max. Class 2	Max. Class 3	Max. Class 2B	Max. Class 3B
1/4	20	**	G H3	G H2	G H5	G H3	.2175	.2211	.2201	.2223	.2211
1/4	**	28	G H3	G H1	G H4	G H3	.2268	.2299	.2290	.2311	.2300
5/16	18	**	G H3	G H2	G H5	G H3	.2764	.2805	.2794	.2817	.2803
5/16	**	24	G H3	G H1	G H4	G H3	.2854	.2887	.2878	.2902	.2890
3/8	16	**	G H3	G H2	G H5	G H3	.3344	.3389	.3376	.3401	.3387
3/8	**	24	G H3	G H1	G H4	G H3	.3479	.3512	.3503	.3528	.3516
7/16	14	**	G H5	G H3	G H5	G H3	.3911	.3960	.3947	.3972	.3957
7/16	**	20	G H3	G H1	G H5	G H3	.4050	.4086	.4076	.4104	.4091
1/2	13	**	G H5	G H3	G H5	G H3	.4500	.4552	.4537	.4565	.4548
1/2	**	20	G H3	G H1	G H5	G H3	.4675	.4711	.4701	.4731	.4717
9/16	12	**	G H5	G H3	G H5	G H3	.5084	.5140	.5124	.5152	.5135
9/16	**	18	G H3	G H2	G H5	G H3	.5264	.5305	.5294	.5323	.5308
5/8	11	**	G H5	G H3	G H5	G H3	.5660	.5719	.5702	.5732	.5714
5/8	**	18	G H3	G H2	G H5	G H3	.5889	.5930	.5919	.5949	.5934
3/4	10	**	G H5	G H3	G H5	G H5	.6850	.6914	.6895	.6927	.6907
3/4	**	16	G H3	G H2	G H5	G H3	.7094	.7139	.7126	.7159	.7143
7/8	9	**	G H6	G H4	G H6	G H4	.8028	.8098	.8077	.8110	.8089
7/8	**	14	G H4	G H2	G H6	G H4	.8286	.8335	.8322	.8356	.8339
1	8	**	G H6	G H4	G H6	G H4	.9188	.9264	.9242	.9276	.9254
1	**	12	G H4	G H2	G H6	G H4	.9459	.9515	.9499	.9535	.9516
1		14 NS	G H4	G H2	G H6	G H4	.9536	.9585	.9572	.9609	.9590
1-1/8	7	**	G H8	G H4	G H8	G H4	1.0322	1.0407	1.0381	1.0416	1.0393
1-1/8	**	12	G H4	G H4	G H6	G H4	1.0709	1.0765	1.0749	1.0787	1.0768
1-1/4	7	**	G H8	G H4	G H8	G H4	1.1572	1.1657	1.1631	1.1668	1.1644
1-1/4	**	12	G H4	G H4	G H6	G H4	1.1959	1.2015	1.1999	1.2039	1.2019
1-3/8	6	**	G H8	G H4	G H8	G H4	1.2667	1.2768	1.2738	1.2771	1.2745
1-3/8	**	12	G H4	G H4	G H6	G H4	1.3209	1.3265	1.3249	1.3291	1.3270
1-1/2	6	**	G H8	G H4	G H8	G H4	1.3917	1.4018	1.3988	1.4022	1.3996
1-1/2	**	12	G H4	G H4	G H6	G H4	1.4459	1.4515	1.4499	1.4542	1.4522

The above recommended taps normally produce the Class of Thread indicated in average materials when used with reasonable care. However, if the tap specified does not give a satisfactory gage fit in the work, a choice of some other limit tap will be necessary.

Best Drill Sizes for Forming Taps

Screw Sizes

SZ	Pitch	Reference 75% Thread				Reference 65% Thread				Reference 55% Thread			
	NC & NF	Theoretical Size	Drill Size MM/ Inch	Drill Size Hole Size	% Of Thread Engmt.	Theoretical Size	Drill Size MM/ Inch	Drill Size Hole Size	% Of Thread Engmt.	Theoretical Size	Drill Size MM/ Inch	Drill Size Hole Size	% Of Thread Engmt.
4	40	.0993	#40	.0997	72	.1009	#39	.1012	64	.1027	2.57	.1028	54
5	40	.1123	2.80	.1119	77	.1140	2.85	.1139	65	.1157	#33	.1147	60
6	32	.1221	3.05	.1218	76	.1242	3.10	.1238	67	.1263	3.16	.1261	56
6	40	.1253	3.15	.1257	72	.1270	3.18	.1269	65	.1287	3.23	.1289	54
8	32	.1481	3.70	.1475	78	.1502	3.75	.1494	69	.1523	#25	.1514	59
8	36	.1498	3.75	.1494	77	.1517	#25	.1514	67	.1536	3.85	.1534	56
10	24	.1688	#19	.1679	78	.1716	#18	.1715	65	.1744	11/64	.1739	57
10	32	.1741	11/64	.1739	76	.1762	4.42	.1759	66	.1783	4.45	.1771	61

Fractional Sizes

SZ	Pitch	Reference 75% Thread				Reference 65% Thread				Reference 55% Thread			
	NC & NF	Theoretical Size	Drill Size MM/ Inch	Drill Size Hole Size	% Of Thread Engmt.	Theoretical Size	Drill Size MM/ Inch	Drill Size Hole Size	% Of Thread Engmt.	Theoretical Size	Drill Size MM/ Inch	Drill Size Hole Size	% Of Thread Engmt.
1/4	20	.2245	5.65	.2245	75	.2279	5.70	.2265	69	.2313	#1	.2302	58
1/4	28	.2318	5.85	.2324	73	.2342	5.88	.2336	68	.2366	15/64	.2366	55
5/16	18	.2842	9/32	.2834	77	.2879	7.25	.2877	66	.2917	7.30	.2897	60
5/16	24	.2913	7.35	.2916	74	.2941	7.40	.2936	67	.2969	7.45	.2956	60
3/8	16	.3431	8.65	.3430	75	.3474	8.75	.3469	66	.3516	S	.3507	57
3/8	24	.3538	8.9	.3529	78	.3566	9.00	.3568	64	.3594	9.05	.3588	57
7/16	14	.4011	X	.3998	78	.4059	10.20	.4042	69	.4108	13/32	.4091	59
7/16	20	.4120	10.4	.4121	75	.4154	Z	.4159	63	.4188	10.54	.4176	58
1/2	13	.4608	11.6	.4595	77	.4660	11.75	.4654	66	.4712	11.80	.4674	62
1/2	20	.4745	12	.4753	73	.4779	12.10	.4793	61	.4813	12.15	.4812	55
9/16	12	.5200	33/64	.5189	77	.5257	13.25	.5247	67	.5313	13.40	.5306	56
9/16	18	.5342	17/32	.5346	74	.5379	13.60	.5385	64	.5417	-	-	-
5/8	11	.5786	14.6	.578	76	.5848	14.75	.5839	66	.5910	14.85	.5879	60
5/8	18	.5967	19/32	.5974	73	.6004	15.20	.6017	62	.6042	15.25	.6037	56
3/4	10	.6990	17.7	.7005	73	.7058	17.80	.7044	67	.7126	17.90	.7084	61
3/4	16	.7181	18.2	.7202	70	.7224	18.30	.7242	61	.7266	-	-	-

Metric Sizes (All dimensions in millimeters except inch drill sizes)

SZ	Pitch	Reference 75% Thread				Reference 65% Thread				Reference 55% Thread			
	MC & MF	Theoretical Size	Drill Size MM/ Inch	Drill Size Hole Size	% Of Thread Engmt.	Theoretical Size	Drill Size MM/ Inch	Drill Size Hole Size	% Of Thread Engmt.	Theoretical Size	Drill Size MM/ Inch	Drill Size Hole Size	% Of Thread Engmt.
M4	.70	3.643	3.60	3.647	74	3.6906	3.65	3.697	64	3.7382	3.68	3.727	57
M5	.80	4.592	4.55	4.601	73	4.6464	4.60	4.651	64	4.7008	4.65	4.701	55
M6	1.00	5.4900	5.45	5.504	73	5.5580	5.50	5.554	66	5.6260	7/32	5.612	57
M8	1.25	7.3625	7.30	7.361	75	7.4475	L	7.428	67	7.5325	7.45	7.512	57
M10	1.25	9.3625	9.30	9.369	74	9.4475	U	9.417	69	9.5325	9.45	9.52	56
M10	1.50	9.235	9.15	9.219	77	9.337	9.25	9.319	67	9.439	9.35	9.419	57
M12	1.25	11.3625	11.30	11.38	73	11.4475	11.35	11.427	67	11.53325	11.4	11.477	61
M12	1.75	11.1075	11.00	11.08	78	11.2265	7/16	11.189	68	11.3455	11.25	11.327	57
M14	1.50	13.235	13.20	13.28	70	13.337	13.25	13.335	65	13.439	13.30	13.385	60
M14	2.00	12.980	12.90	12.98	75	13.116	13	13.084	67	13.252	33/64	13.18	60
M16	2.00	14.980	14.85	14.94	78	15.116	15	15.092	67	15.252	19/32	15.174	61
M20	2.50	18.725	18.60	18.71	76	18.895	18.75	18.856	67	19.065	18.90	19.007	58
M24	3.00	22.470	22.40	22.52	73	22.674	22.50	22.621	68	22.878	57/64	22.743	62

Tapping Information

Material	Type	Hardness Rc	Hardness BHN	Speed SFM
Steel	Low Carbon Free Machining	<15	<180	20-65
	Medium to High Low Alloyed	<23	<240	20-50
	Castings and Forgings Heat Treatable Alloys	>24 <=38	>250 <=350	13-26
	Alloyed Tool Mold	>38 <=44	>350 <=420	6-13
Stainless Steel	Free Machining	<23	<240	5-15
	Heat and Corrosion Resistant	>24	<250	3-13
	Castings Precipitation Hardening	>38 <=44	>350 <=420	3-10
Cast Iron	Gray		<=220	20-65
	Nodular Chilled Meehanite Ductile		>=250	10-40
Aluminum	Pure Alloys			50-130
	Alloy Castings			30-65
Nickel Alloys	718 625 Hastelloy Monel Waspaloy Invar Incoloy	<=38	<=350	<13
	718 Inconel A286	>38 <=44	>350 <=420	<13
Titanium		<=38	<=350	<13
Copper				25-50
Brass				30-65
Bronze		<44	<420	6-50
Zinc				25-50
Magnesium				30-65
Plastics	Thermoplastics			30-130
	Thermosetting Reinforced			15-40
Powder Metal		<44	<420	20-50
Graphite				15-35
Ceramics	Machinable Glasses			15-35
Special	Bronze Berrilium Copper			<13
	Tungsten Ferro-Tic			5-15
	CPM10V			5-15

Application Reference Chart

Application	ULTRA-KUT® TAP SERIES / MATERIAL HARDNESS Rc																								
	100	110	120	200	210	220	300	310	400	410	500	520	600	610	620	710	715	720	725	730	800	810	900	910	930
Medium to High Carbon Steels	24-44	24-44	24-44	Up to 23	Up to 23	Up to 23			38-44	38-44			Up to 23	Up to 23	Up to 23	24-44	Up to 23	24-44	Up to 23	38-44	Up to 23	24-44		15-30	
Low Alloyed Steels	24-44	24-44	24-44	Up to 23	Up to 23	Up to 23			38-44	38-44			Up to 23	Up to 23	Up to 23	24-44	Up to 23	24-44	Up to 23	38-44	Up to 23	24-44	Up to 20	15-30	
Steel Castings & Forgings	24-44	24-44	24-44	Up to 23	Up to 23	Up to 23			38-44	38-44			Up to 23	Up to 23	Up to 23	24-44	Up to 23	24-44	Up to 23	38-44	Up to 23	24-44	Up to 20	15-30	Up to 38
Heat Treatable Alloy Steels	24-44	24-44	24-44	Up to 23	Up to 23	Up to 23			38-44	38-44			Up to 23	Up to 23	Up to 23	24-44	Up to 23	24-44	Up to 23	38-44	Up to 23	24-44			
Alloyed Tool Steels	24-44	24-44	24-44	Up to 23	Up to 23	Up to 23			38-44	38-44			Up to 23	Up to 23	Up to 23	24-44	Up to 23	24-44	Up to 23	38-44	Up to 23	24-44		15-30	
Mold Steels	24-44	24-44	24-44	Up to 23	Up to 23	Up to 23			38-44	38-44			Up to 23	Up to 23	Up to 23	24-44	Up to 23	24-44	Up to 23	38-44	Up to 23	24-44			
Aluminum Alloy Castings	–	–	–										–	–	–	–		–				–			
Free Machining Stainless Steels	24-38	24-38	24-38	Up to 23	Up to 23	Up to 23							Up to 23	Up to 23	Up to 23	24-38	Up to 23	24-38	Up to 23		Up to 23	24-38	Up to 20	15-30	
Heat and Corrosion-Resistant Stainless Steel	24-38	24-38	24-38	Up to 23	Up to 23	Up to 23							Up to 23	Up to 23	Up to 23	24-38	Up to 23	24-38	Up to 23		Up to 23	24-38		15-30	
Valve Stainless Steels	24-38	24-38	24-38	Up to 23	Up to 23	Up to 23							Up to 23	Up to 23	Up to 23	24-38	Up to 23	24-38	Up to 23		Up to 23	24-38			
Stainless Steel Castings	24-38	24-38	24-38	Up to 23	Up to 23	Up to 23							Up to 23	Up to 23	Up to 23	24-38	Up to 23	24-38	Up to 23		Up to 23	24-38		15-30	
Precipitation Hardening Stainless Steels	24-38	24-38	24-38	Up to 23	Up to 23	Up to 23							Up to 23	Up to 23	Up to 23	24-38	Up to 23	24-38	Up to 23		Up to 23	24-38		15-30	
Pure Aluminum and Aluminum Alloys				–	–	–											–		–		–				
Zinc				–	–	–											–		–		–				
Low Carbon Steels				Up to 15	Up to 15	Up to 15							Up to 15	Up to 15	Up to 15		Up to 15		Up to 15		Up to 15		Up to 20		
Free Machining Carbon Steels				Up to 15	Up to 15	Up to 15							Up to 15	Up to 15	Up to 15		Up to 15		Up to 15		Up to 15		Up to 20		
Pure and Alloyed Copper				–	–	–							–	–	–		–		–		–				
Magnesium				–	–	–							–	–	–		–		–		–				
Thermoplastics				–	–	–											–		–		–				
718 and 625 Inconel							Up to 38	Up to 38	Up to 38	Up to 38										Up to 38				15-30	Up to 38
Hastelloy							Up to 38	Up to 38	Up to 38	Up to 38										Up to 38				15-30	Up to 38
Monel							Up to 38	Up to 38	Up to 38	Up to 38										Up to 38				15-30	Up to 38
Waspaloy							Up to 38	Up to 38	Up to 38	Up to 38										Up to 38				15-30	Up to 38
Invar							Up to 38	Up to 38	Up to 38	Up to 38										Up to 38				15-30	Up to 38
Incoloy							Up to 38	Up to 38	Up to 38	Up to 38										Up to 38				15-30	Up to 38
Titanium							Up to 38	Up to 38	Up to 38	Up to 38										Up to 38					
Ampco Bronze and Beryllium Copper							–	–	–	–										–					
Nodular Cast Iron											Up to 250 BHN	Up to 250 BHN													
Chilled Cast Iron											Up to 250 BHN	Up to 250 BHN													
Meehanite Iron											Up to 250 BHN	Up to 250 BHN													
Ductile Iron											Up to 250 BHN	Up to 250 BHN													
Bronze											–	–													
Thermosetting/ Reinforced Plastics											–	–													
Powder Metal											Up to 44	Up to 44													
Graphite											–	–													
Machinable Ceramics											–	–													
Glasses											–	–													
Tungsten											–	–													
Ferro-Tic											–	–													

Ultra-Kut® Tap Dimensions

Ultra-Kut® Tap Dimensions ANSI Length and ANSI Shank

Machine Screw Size	Fractional Size	Metric Size	Overall Length	Thread Length	Shank Diameter	Size of Square
No. 4			1-7/8	.433	.141	.110
No. 5			1-15/16	.433	.141	.110
No. 6			2	.472	.141	.110
No. 8		M4	2-1/8	.512	.168	.131
No. 10		M5	2-3/8	.591	.194	.152
	1/4	M6	2-1/2	.699	.255	.191
	5/16	M8	2-23/32	.787	.318	.238
	3/8	M10	2-15/16	.866	.381	.286
	7/16		3-5/32	.866	.323	.242
	1/2	M12	3-3/8	.994	.367	.275
	9/16	M14	3-19/32	1.024	.429	.322
	5/8	M16	3-13/16	1.063	.480	.360
	3/4		4-1/4	1.181	.590	.442
		M20	4-15/32	1.102	.652	.489
		M24	4-29/32	1.339	.760	.570

Ultra-Kut® ISO Metric S.T.I. Tap Dimensions DIN Length and DIN Shank

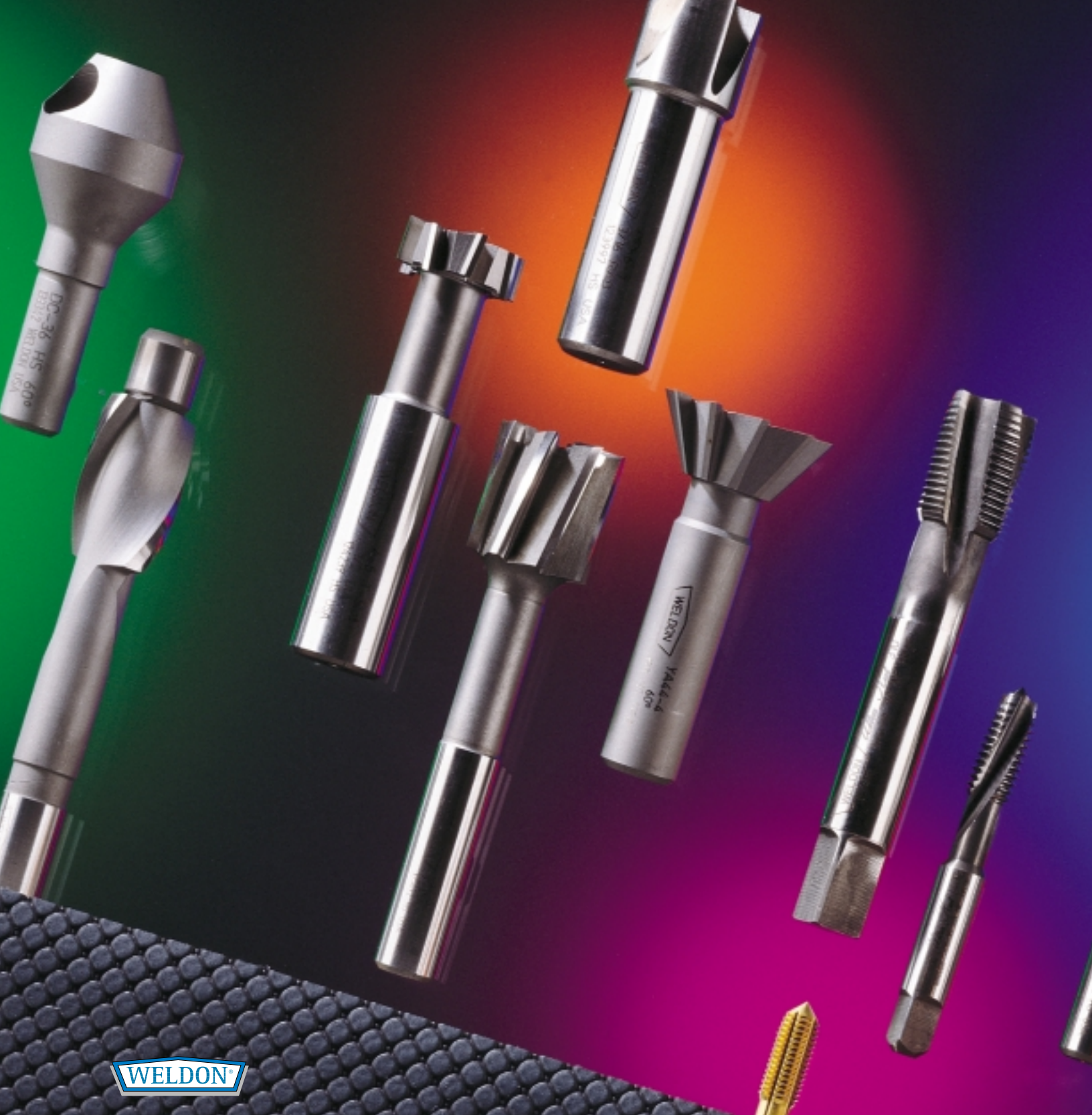
Metric Size	Overall Length	Thread Length	Shank Diameter	Size of Square
M2.5	56mm	11mm	3.5mm	2.7mm
M3.0	63mm	10mm	4.5mm	3.4mm
M3.5	70mm	14mm	6.0mm	4.9mm
M4.0	70mm	13mm	6.0mm	4.9mm
M5.0	80mm	13mm	6.0mm	4.9mm
M6.0	90mm	17mm	8.0mm	6.2mm
M8.0	100mm	18mm	10.0mm	8.0mm
M10.0	110mm	21mm	12.0mm	9.0mm
M12.0	110mm	26mm	11.0mm	9.0mm
M14.0	110mm	27mm	12.0mm	9.0mm
M16.0	125mm	27mm	14.0mm	11.0mm
M18.0	140mm	32mm	18.0mm	14.5mm
M20.0	160mm	34mm	18.0mm	14.5mm

Ultra-Kut® S.T.I. Tap Dimensions DIN Length and ANSI Shank

Machine Screw Size	Fractional Size	Overall Length	Thread Length	Shank Diameter	Size of Square
No. 4		2.205	.472	.141	.110
No. 5		2.480	.512	.168	.131
No. 6		2.756	.591	.194	.152
No. 8		3.150	.630	.220	.165
No. 10		3.150	.669	.255	.191
No. 12		3.543	.699	.318	.238
	1/4	3.543	.787	.318	.238
	5/16	3.937	.866	.381	.286
	3/8	4.331	.984	.367	.275
	7/16	4.331	1.024	.429	.322
	1/2	4.331	1.063	.480	.360
	9/16	4.921	1.181	.542	.406
	5/8	4.921	1.181	.590	.442
	3/4	5.512	1.260	.697	.523

Ultra-Kut® Taper Pipe ANSI Length and ANSI Shank

Nominal Size	Threads Per Inch	Overall Length	Thread Length	Shank Diameter	Size of Square
1/16	27	2.125	.687	.3125	.234
1/8	27	2.125	.750	.4375	.328
1/4	18	2.437	1.062	.5625	.421
3/8	18	2.562	1.062	.7000	.531
1/2	14	3.125	1.375	.6875	.515
3/4	14	3.250	1.375	.9063	.679
1	11-1/2	3.750	1.750	1.1250	.843
1-1/4	11-1/2	4.000	1.750	1.3125	.984
1-1/2	11-1/2	4.250	1.750	1.5000	1.125
2	11-1/2	4.500	1.750	1.8750	1.406



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